

AM/FM STEREO RECEIVER

SX-750

SERVICE MANUAL



 PIONEER

This Service Manual is applicable only to the KC, KU model.

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1. SPECIFICATIONS

Semiconductors

FET	1
ICs	7
Transistors	42
Diodes	40

Amplifier Section

Continuous Power Output from 20 Hertz to 20,000 Hertz
(Both channels driven) . . 50 watts per channel (8 ohms)
60 watts per channel (4 ohms)

Total Harmonic Distortion

(20 Hertz to 20,000 Hertz, from AUX)

Continuous Rated Power Output . . No more than 0.1%

25 watts per channel power

output, 8 ohms No more than 0.05%

1 watt per channel power

output, 8 ohms No more than 0.05%

Intermodulation Distortion

(50 Hertz: 7,000 Hertz=4:1, from AUX)

Continuous Rated Power Output . . No more than 0.1%

25 watts per channel power

output, 8 ohms No more than 0.05%

1 watt per channel power

output, 8 ohms. No more than 0.05%

Damping Factor

(20 Hertz to 20,000 Hertz) 30

Input (Sensitivity/Impedance)

PHONO 2.5mV/50k ohms

MIC 5mV/50k ohms

AUX 150mV/50k ohms

TAPE PLAY 1 150mV/50k ohms

TAPE PLAY 2 150mV/50k ohms

TAPE PLAY 2 (DIN connector) . . . 150mV/50k ohms

PHONO Overload Level (T.H.D. 0.1%)

. 200mV (1kHz)

Output (Level/Impedance)

TAPE REC 1 150mV

TAPE REC 2 150mV

TAPE REC 2 (DIN connector) 30mV/80k ohms

SPEAKER A, B, A+B

HEADPHONES Low Impedance

Frequency Response

PHONO (RIAA equalization)

. 30 Hertz to 15,000 Hertz ± 0.2 dB

AUX, TAPE PLAY

. 10 Hertz to 50,000 Hertz $\begin{smallmatrix} +0 \\ -1 \end{smallmatrix}$ dB

Tone Control

BASS +8dB, -7dB (100 Hz)

TREBLE +9dB, -7dB (10 kHz)

Filter

HIGH 6 kHz (6dB/oct.)

Loudness Contour (Volume control set

at -40dB position) +6dB (100 Hz), +3dB (10 kHz)

Hum and Noise

(IHF, short-circuited, A Network, rated power)

PHONO 70dB

AUX, TAPE PLAY 90dB

FM Section

Usable Sensitivity MONO 10.7dBf (1.9 μ V)

STEREO 19.0dBf (9.8 μ V)

50dB Quieting Sensitivity

MONO 17.2dBf (4.0 μ V)

STEREO 39.2dBf (50 μ V)

Signal to Noise Ratio at 65dBf

MONO 72dB

STEREO 67dB

Distortion at 65dBf 100Hz . . MONO 0.15%

STEREO 0.3%

1kHz . . . MONO 0.15%

STEREO 0.3%

6kHz . . . MONO 0.4%

STEREO 0.4%

Frequency Response 30Hz to 15,000Hz $\begin{smallmatrix} +0.2 \\ -2.0 \end{smallmatrix}$ dB

Capture Ratio 1.0dB

Alternate Channel Selectivity 80dB

Spurious Response Ratio 90dB

Image Response Ratio 80dB

IF Response Ratio 100dB

AM Suppression Ratio 55dB

Muting Threshold 14dBf (2.8 μ V)

Stereo Separation 40dB (1kHz), 30dB (30Hz

~15kHz)

Subcarrier Product Ratio 62dB

SCA Rejection Ratio 62dB

Antenna Input 300 ohms balanced

75 ohms unbalanced

2. FRONT PANEL FACILITIES

POWER INDICATOR LAMP

Lights when **SPEAKERS** switch is moved to any position from **POWER OFF**, and AC power is supplied to the receiver.

SPEAKERS SWITCH

Functions both as power switch and speaker selection switch.

POWER OFF: AC power is off.

A: Sound will be heard from speakers connected to A speaker terminals.

OFF: No sound will be heard from speaker systems. This position should be used when listening with headphones.

B: Sound will be heard from speakers connected to B speaker terminals.

A + B: Sound will be heard from speakers connected to A terminals and from speakers connected to B terminals.

PHONES OUTPUT

Insert headphone plug into this jack when headphone listening is desired. In this case, **SPEAKERS** switch should be in **OFF** position.

BASS, TREBLE CONTROLS

For tone adjustment when **TONE** switch is in **ON** position. When knobs are turned clockwise from "0" position, response in bass or treble range, respectively, is boosted. Turning counterclockwise attenuates response.

TONE SWITCH

Controls ON-OFF operation of tone control circuit. In the **ON** position, tone control by means of **BASS** and **TREBLE** knobs may be accomplished. In the **OFF** position, the tone control circuit is bypassed and frequency response in high and low ranges is flat.

HIGH FILTER SWITCH

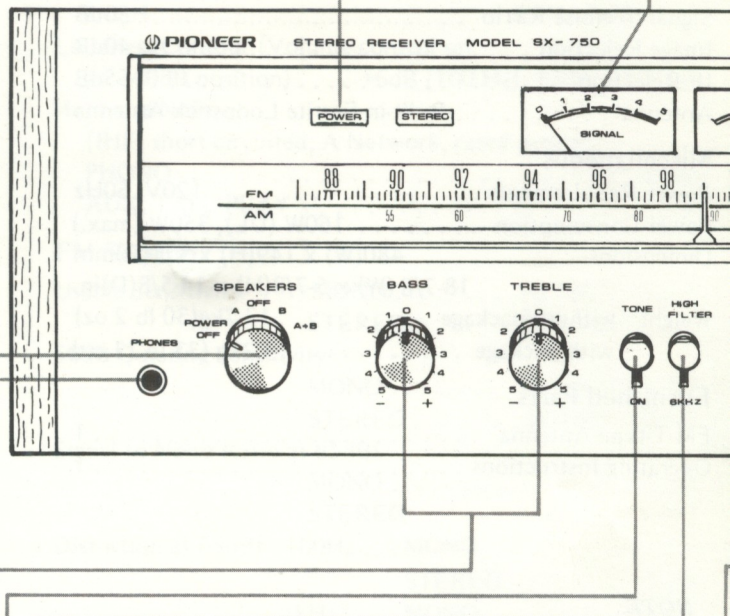
For high frequency noise due to scratches on the record, place switch in **6kHz** position. This will provide 6dB/octave attenuation at frequencies above 6kHz. For normal operation switch should be in **OFF** (upper) position.

SIGNAL METER

For FM and AM reception, turn **TUNING** knob until needle of the **SIGNAL** meter is deflected a maximum to the right.

STEREO INDICATOR LAMP

Lights when FM stereo broadcast is being received.



BALANCE CONTROL

For adjustment of relative output levels of L and R channels of speaker systems or headphones. Clockwise rotation from center position increases volume of R over L channel. Counterclockwise rotation increases volume of L channel over R.

VOLUME CONTROL

For adjustment of speaker or headphone output level. Level increases with clockwise rotation of knob.

LOUDNESS SWITCH

For listening at low volume level, placing this switch in the **ON** position will boost response in low and high frequency ranges.

The response of the human ear to low and high sound volumes is different. At low volume levels, the ear is relatively insensitive to sounds at either extreme of the frequency scale. By means of the **LOUDNESS** switch, these sounds are given additional amplification.

FM TUNING METER

With the needle of the SIGNAL meter deflected to the right, fine-tune FM broadcast by centering needle of TUNING meter.

PROGRAM SOURCE INDICATORS

Indicate program source selected by means of FUNCTION switch.

TUNING KNOB

For selection of FM or AM stations.

FM MUTING BUTTON

For selection of FM broadcasts, button should be in ON (released) position.

When button is in ON position, unpleasant interstation noise is suppressed. When signal strength is poor, it may not be possible to bring in the desired station if MUTING is ON. In this case, press button to place it in the OFF position.

FUNCTION SELECTOR

For selection of program source.

AM: AM broadcasts

FM: FM broadcasts

PHONO: Playing records

AUX/MIC: For use of component connected at AUX terminals of receiver, or microphones which may be plugged into MIC jack.

NOTE:

AUX and MIC program sources cannot be used simultaneously. When using AUX hi-fi component, microphone should be disconnected.

MODE SWITCH

For selection of stereophonic or monophonic mode of playback. In normal operation, switch should be in STEREO position. In the MONO position, R and L channel signals will be mixed, and sounds coming from speakers of both channels will be the same.

NOTE:

Recording stereophonically with the MODE switch in the MONO position may cause channel separation to deteriorate.

DUPLICATE SWITCH

With switch in ON position, signals recorded on one of two tape decks connected to the receiver may be recorded onto the other, with or without editing. For normal operation, this switch must be in OFF (upper) position.

MIC JACK

Accepts standard 6mm ϕ plug. Microphone input signal enters both R and L channels.

TAPE MONITOR SWITCH

1: For program sources other than tape deck (playback). (REC or PLAY).

SOURCE: For program sources other than tape deck (playback).

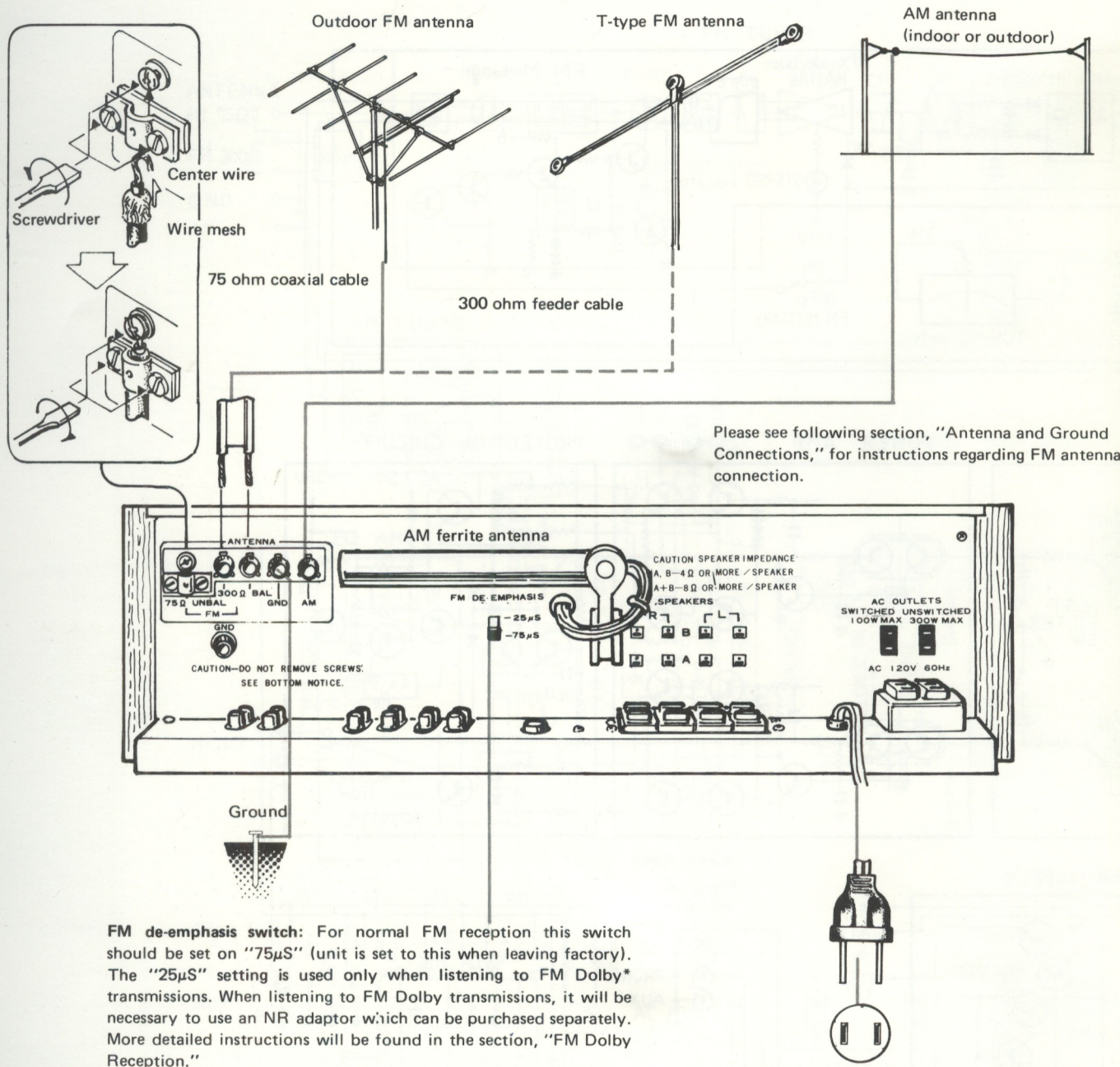
2: For monitoring of playback or record mode of tape deck connected to TAPE 2 terminals (REC or PLAY).

NOTE:

When not monitoring record or playback mode of a tape deck, switch should be in SOURCE position. In position 1 or 2, the program source indicated by the FUNCTION selector will not be heard through speaker systems or headphones.

3. CONNECTION DIAGRAM

REAR VIEW



FM de-emphasis switch: For normal FM reception this switch should be set on "75 μ S" (unit is set to this when leaving factory). The "25 μ S" setting is used only when listening to FM Dolby* transmissions. When listening to FM Dolby transmissions, it will be necessary to use an NR adaptor which can be purchased separately. More detailed instructions will be found in the section, "FM Dolby Reception."

ANTENNA PLACEMENT

Make note of the following points when choosing a location for the FM antenna.



Direction of signals
1.5 meter (5 ft.) above
More than 4 meters
(15 ft.) above ground

- Feeder wire and cable should be insulated at mounting points.
- Length should be as short as possible.
- Feeder wire should not be coiled.

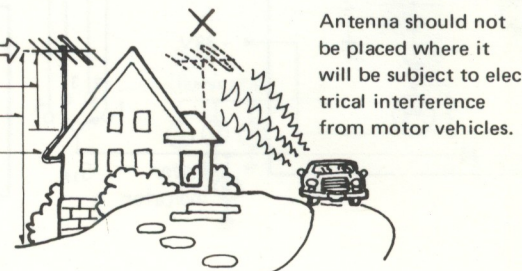


Fig. 1

TOP VIEW

Accessory AC outlets:

Switched Power to this outlet is controlled by the SX-750 power switch. When power to the receiver is "On," this outlet will provide AC current (**100 watts maximum**).

Unswitched Power to this outlet is not controlled by the SX-750 power switch. As long as the power cord is plugged into a live outlet, this outlet will supply AC current (maximum 300 watts).

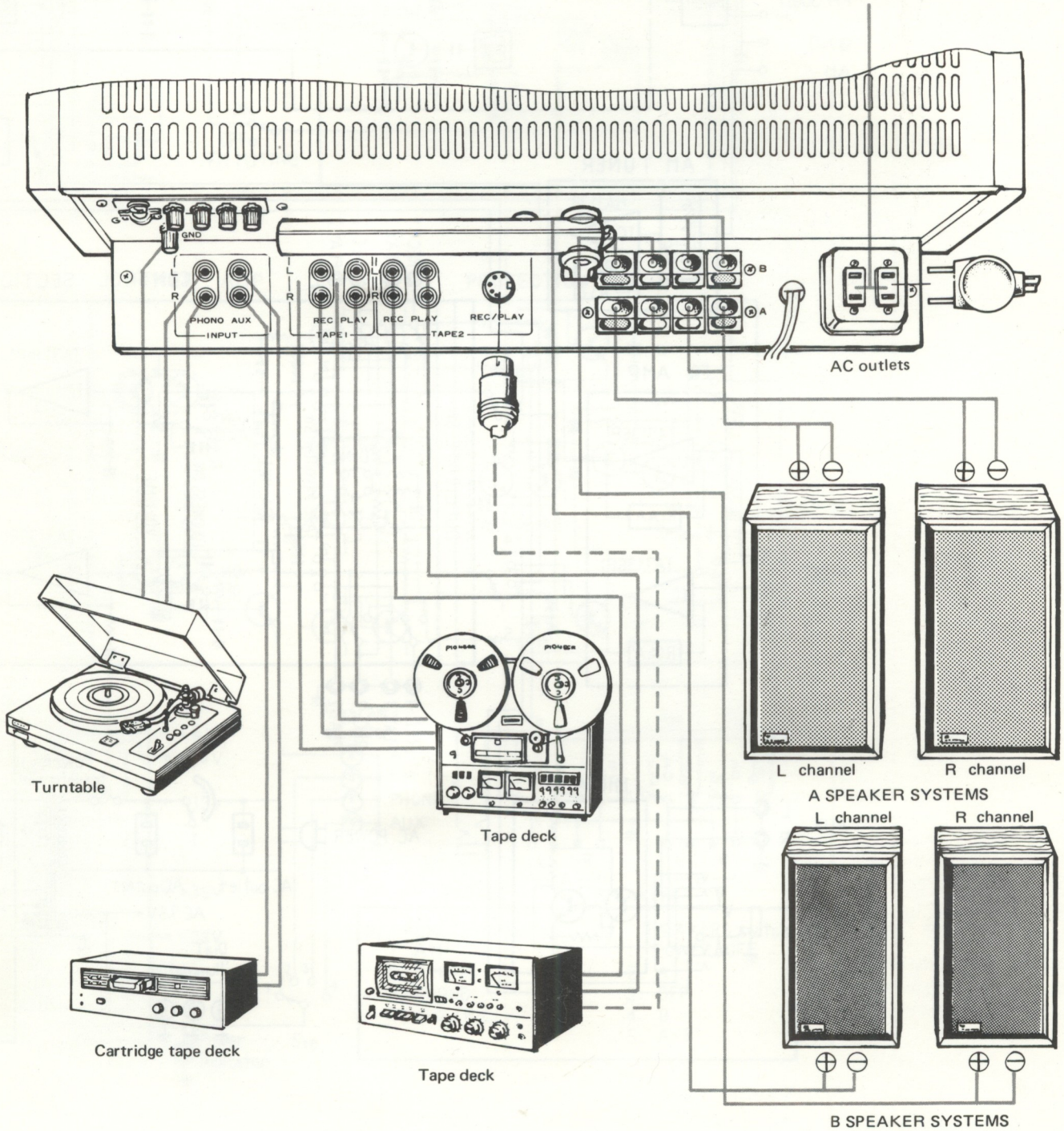
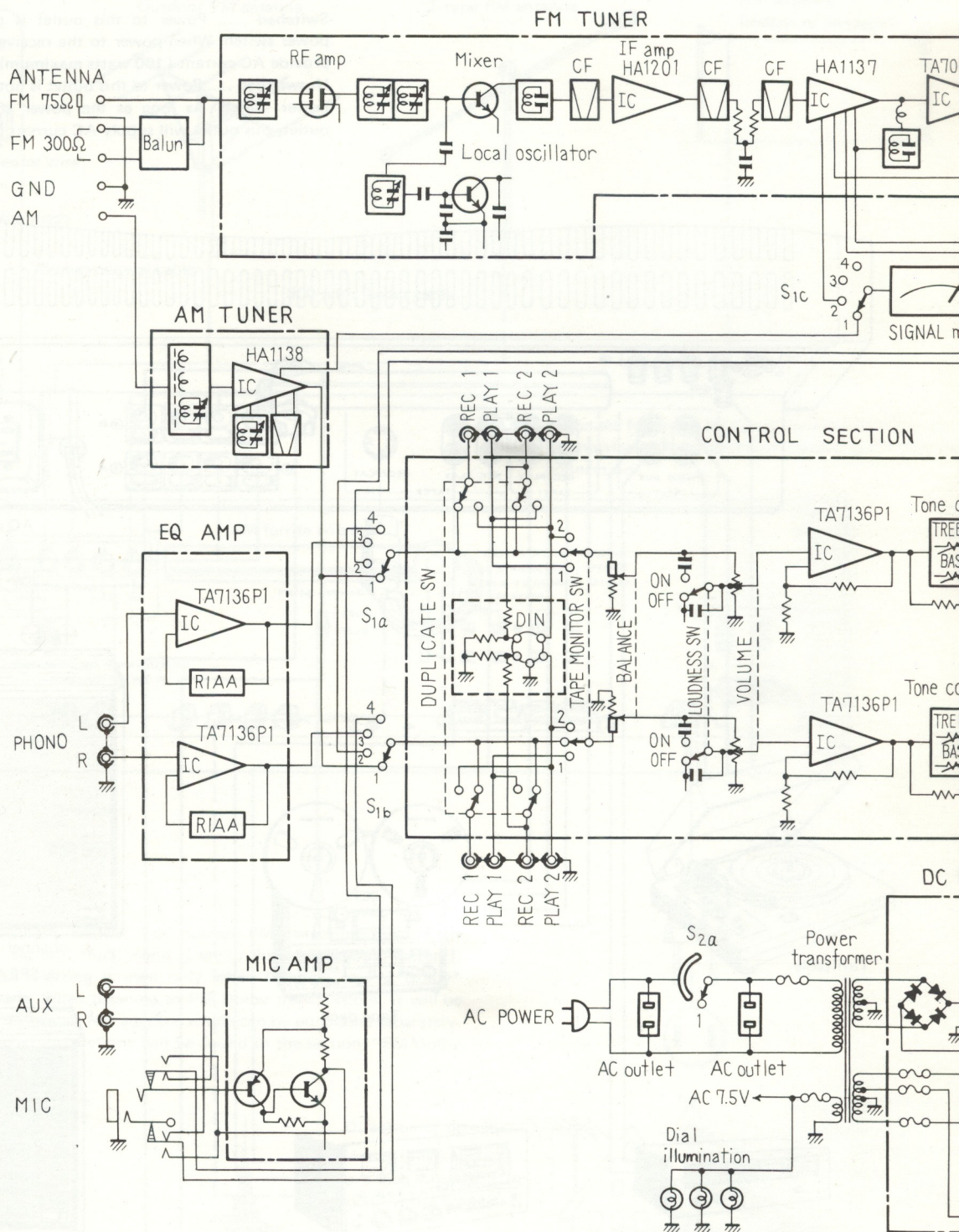


Fig. 2

4. BLOCK DIAGRAM



5. CIRCUIT DESCRIPTIONS

5.1 AM TUNER

Composed of single IC (HA1138) combining a 1 stage RF amplifier and a 2 stage IF amplifier (Fig. 1).

5.2 FM TUNER

Front End

The outstanding performance, exemplified by the remarkable 80dB imaging and 90dB spurious rejection, originates in the dual-gate MOS FET RF amplifier and 4-gang variable capacitor tuning circuit. A modified Clapp circuit is employed in the local oscillator, leading to high frequency stability. Since the output is taken from the oscillator tuning circuit, higher harmonics in the oscillator signal and spurious response become reduced.

IF Amplifier and Detector

Comprise 2 dual element ceramic filters, 1 transistor, and 1 IC (integrated circuit). The IC (HA1137) circuit is illustrated in Fig. 2.

FM IF Amplifier and Detector Circuit

Three dual element ceramic filters, an IC (HA1201) containing a differential amplifier, and an IC (HA1137) containing a 3-stage limiter amplifier compose the FM IF amplifier. Fig. 2 shows the HA1137 block diagram (see circuit diagram on page 65).

In addition to limiter amplifier, the HA1137 IC includes detector, meter drive circuits. The detector circuit in the HA1137 is not employed in this set however a separate ratio detector circuit is employed instead, resulting in improved S.N ratio.

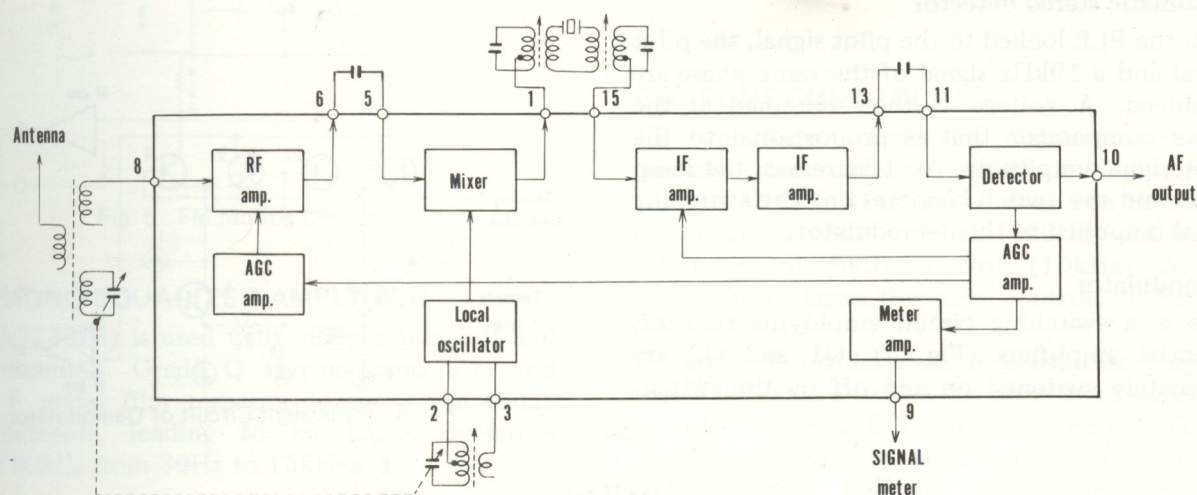


Fig. 1 Block Diagram of HA1138

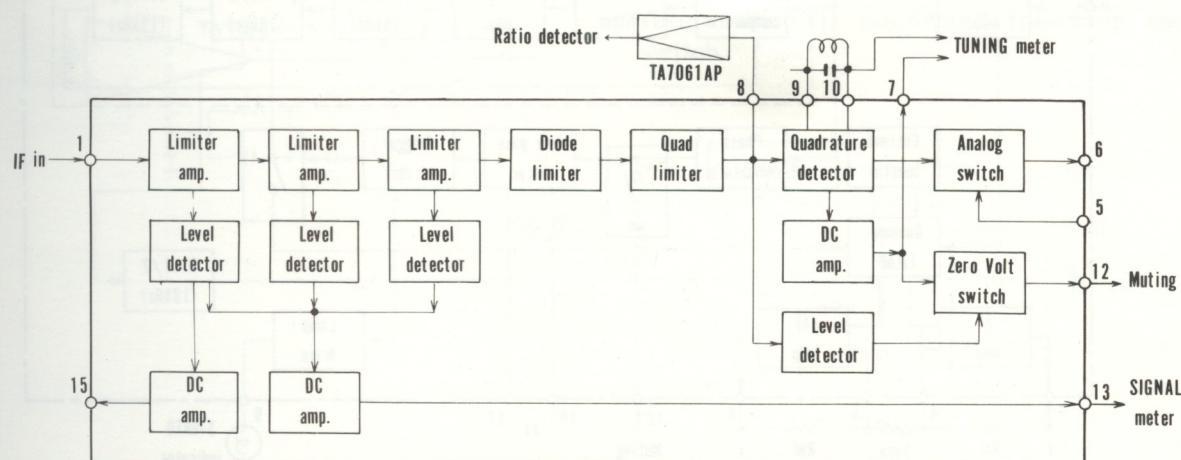


Fig. 2 Block Diagram of HA1137

Multiplex Decoder

Demodulation is performed by switching detection. A single IC (HA1196) composes the circuit, which is divided into 3 sections. Fig. 3 shows the HA1196 block diagram (see circuit diagram on page 65).

1. Switching signal generator

A PLL (phase locked loop) system is employed. 76kHz is generated by a VCO (voltage controlled oscillator: oscillator in which the frequency is varied by a control voltage) and converted into 19kHz by a frequency divider. This signal and the pilot (19kHz) of the received signal are applied to a phase comparator, which converts the phase differences of the two signals into a voltage. The voltage is then fed back to the VCO. The oscillator signal phase becomes locked to the pilot signal by this loop (PLL) and a 38kHz signal synchronised to the pilot signal is obtained and employed as the switching signal.

2. Automatic stereo detector

With the PLL locked to the pilot signal, the pilot signal and a 19kHz signal of the same phase are produced. A voltage is then obtained at the phase comparator that is proportional to the pilot signal amplitude. As it increases, the lamp lights and the switch becomes on. The switching signal is applied to the demodulator.

3. Demodulator

This is a switching circuit employing two differential amplifiers (Fig. 4). Q1 and Q2 are alternately switched on and off by the switch-

ing signal. The composite signal is amplified at Q3, switched and demodulated. Q6 and Q3 are loosely coupled at their emitters by R1 — R3. Q6 is driven in reverse phase to Q3. This is switched at Q4 and Q5, and by composing with Q1 and Q2 at the collector, crosstalk becomes cancelled.

Adequate current flow is required to Q3 and Q6 to improve distortion figures at this point. However, if the base bias voltage is raised, the voltage component at the collector becomes reduced and clipping occurs (power supply voltage is limited by IC voltage endurance). For this reason, current from an external source is inserted at Q3 and Q6 collectors to become I_1 and I_2 . The same current amounts are obtained as I_3 and I_4 from the emitters. Q3 and Q6 therefore operate with adequate current, and distortion at this stage becomes remarkably improved. A feedback amplifier amplifies the demodulated output.

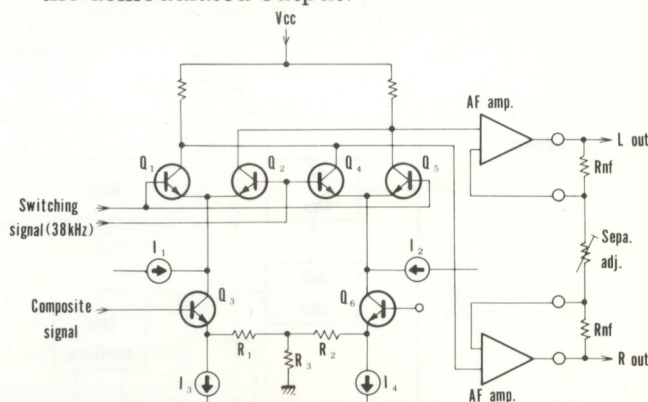


Fig. 4 Equivalent Circuit of Demodulator

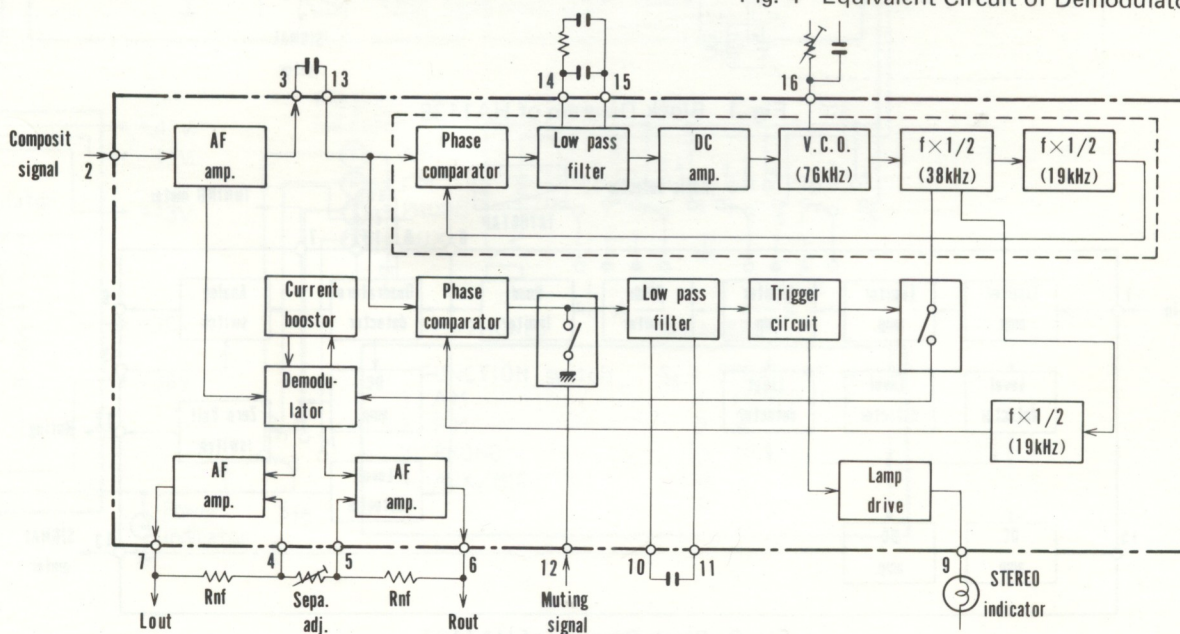


Fig. 3 Block Diagram of HA1196

5.3 FM MUTING CIRCUIT

At time of detuning (more than $\pm 70\text{kHz}$) and with an antenna input of less than 10dB ($0\text{dB} = 1\mu\text{V}$), a DC voltage is produced at pin 12 of IC₁ (HA1137). This voltage is employed as the muting trigger. With the MUTING switch ON, Q1 becomes ON and Q2 OFF in the Q1-Q2 Schmitt circuit as the muting trigger is produced. Q3 becomes ON when Q2 is OFF, and Q4, Q5 and Q6 also become ON. With Q4 & Q5 ON, the FM output becomes grounded, while IC₁ output is grounded by Q6 to apply muting.

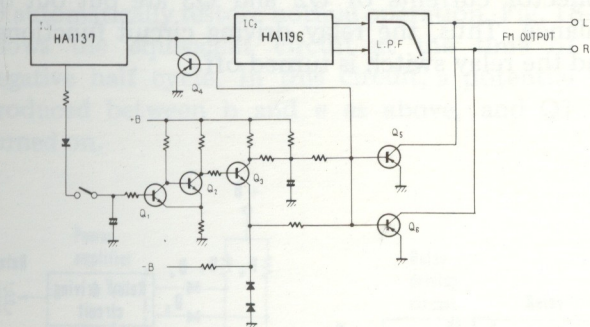


Fig. 5 FM Muting Circuit

5.4 PHONO EQUALIZER AMPLIFIER

IC (TA7136P1) is used with independent left and right channels. Grade G styrole capacitors and grade F metal film resistors comprise the equalizer elements, leading to an RIAA deviation within 0.2dB from 30Hz to 15kHz .

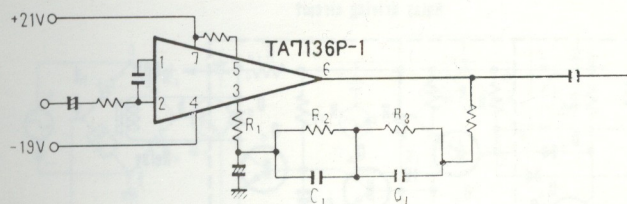


Fig. 6

5.5 MICROPHONE CIRCUIT

A 2 stage transistor amplifier (monophonic) is provided in addition to the phono equalizer amplifier. A selector switch cuts the AUX jack input when a plug is inserted into the MIC jack. The amplified microphone signal is then supplied to both the left and right channels. The FUNCTION switch is set to the AUX position when using a microphone.

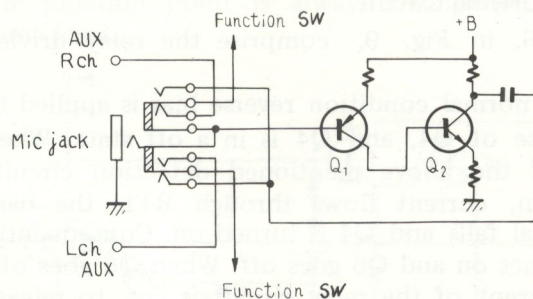


Fig. 7

5.6 TONE CONTROL

CR type tone controls are connected to an extremely low output impedance flat amplifier (IC = TA7136, 31dB gain). Bass can be varied in the range of $+8\text{dB} \sim -7\text{dB}$ (100Hz) and treble in the range of $+9\text{dB} \sim -7\text{dB}$ (10kHz). A TONE switch also allows the tone controls to be switch ON/OFF.

R1 and R2 are designed to provide the same loss when the TONE switch is OFF as obtained with the TONE switch ON and the BASS and TREBLE controls at center positions (flat). Frequency response thus becomes flat when the TONE switch is set to OFF.

R3, and C1 form a 6kHz 6dB/octave HIGH CUT filter which is connected following the TONE switch.

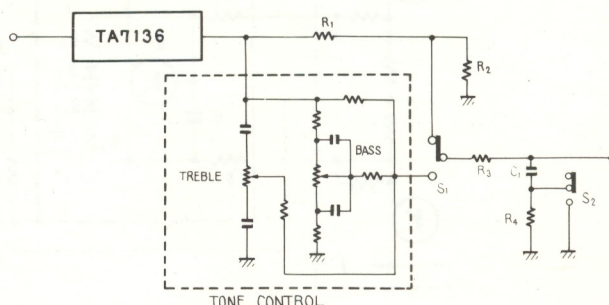


Fig. 8

5.7 PROTECTION CIRCUIT

This protection circuit functions to protect the speakers and the power amplifiers from damage due to short-circuit of the load, etc., and performs a muting operation to cut noise and distortion which occur when switching the power on and off. The circuit is shown in Fig. 15, and consists of a bridge type over-current and overload detector, a differential amplifier DC voltage detector, and a power switch ON/OFF detector section.

Relay Driving Circuit

Q4—Q6, in Fig. 9, comprise the relay driving circuit.

In the normal condition reverse bias is applied to the base of Q4, and Q4 is in a off state. When one of the above mentioned detection circuits goes on, current flows through R11, the base potential falls and Q4 is turned on. Consequently Q5 comes on and Q6 goes off. When Q6 goes off, the current of the relay circuit is cut, to release the switch of the output circuit.

When the power switch is turned on, a delay operation occurs in this circuit. R17 and C3, in the base circuit of Q6, are the time constant elements which determine the delay time. When the power switch is turned on, C3 charges to a potential of +60 volts through R17 and R18, and Q6 is kept in the off state during this time. When the power source is switched off, the muting operation of Q5 prevents shock noise. In the normal condition, the potentials of +33 volts and -5.1 volts are applied to Q5 through R14 and R15. The resultant potential at the base of Q5 is -1 volt in the cutout condition. When the power supply is turned off,

of -5.1 volts disappears immediately due to the small time constant of the power circuit. Thus a positive base potential remains, switching Q5 on, which in turn switches off Q6 and hence the relay.

Detection of DC Voltage

This is a differential amplifier consisting of Q2 and Q3, as shown in Fig. 10. The bases of Q2 and Q3 are connected to the center points of the right and the left power amplifiers. When the DC balance of the power stage is lost for some reason, a potential difference is produced in the input signal to the differential amplifier, and the collector currents of Q2 and Q3 are put out of balance. Thus, the relay driving circuit functions, and the relay switch is turned off.

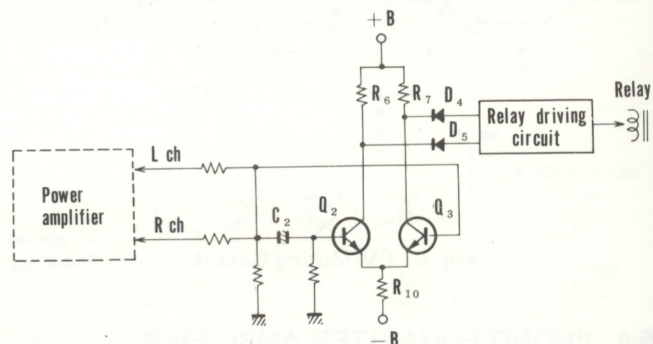


Fig. 10 DC Voltage Detection Circuit

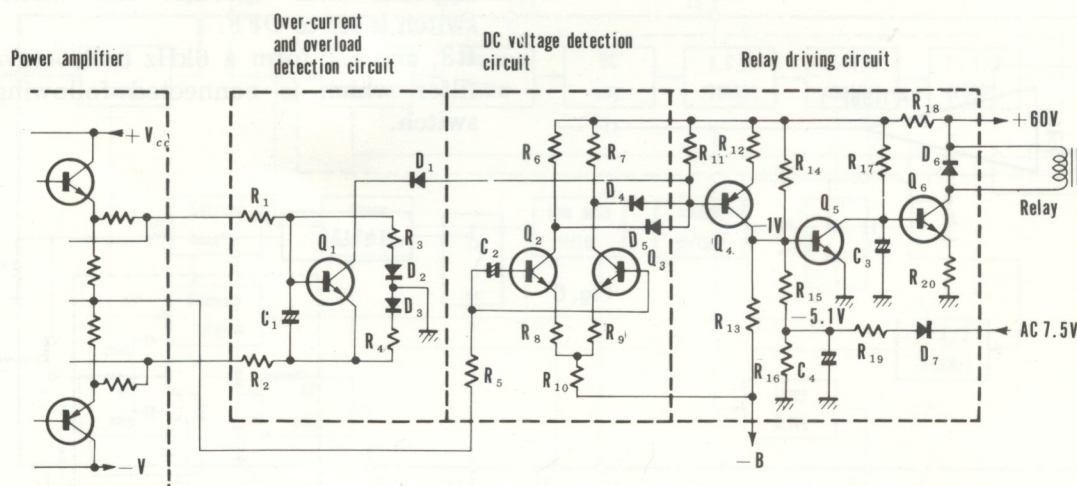


Fig. 9 Protection Circuit

Over-current and Overload Detection

The equivalent circuit of this detector section is shown in Fig. 11, and Fig. 12-a shows the equivalent circuit at the time of a positive half cycle. When this equivalent circuit is overloaded, the balance of the bridge, formed by RE1, R1, R3 and RL, is disturbed, and a potential is produced between b and a in such a direction that Q1 is turned on. When Q1 is turned on, the collector current increases, the relay driving circuit functions and the relay switch of the output circuit is turned off.

After the cause of the overload is removed, the bias of Q1 is reduced and the relay switch turns on to automatically restore normal operation, Fig. 18-b shows the equivalent circuit at the time of a negative half cycle. In this circuit, a potential is produced between b and e as above, and Q1 is turned on.

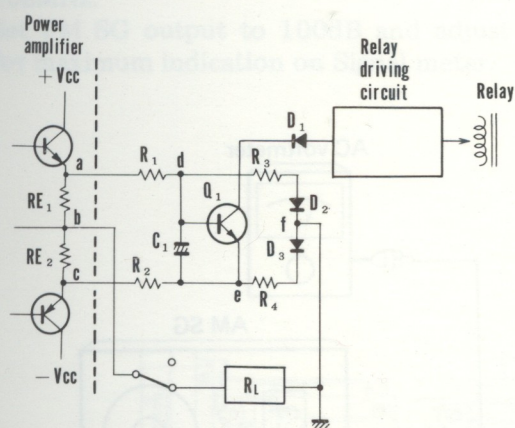


Fig. 11 Over-current and Overload Detection Circuit

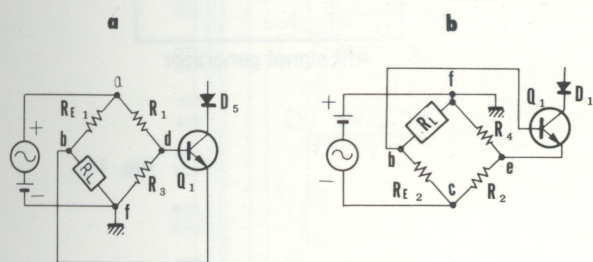


Fig. 12 Equivalent Circuit of

5.8 POWER AMPLIFIER CIRCUIT

Composed of differential first stage, all stages direct coupled pure complementary OCL circuit. Open gain at 1kHz is approximately 80dB and NFB amount is approximately 50dB. R3 and R4 are provided with this circuit in order to obtain adequate stability even with the NFB disconnected. Q1 form a differential amplifier: 100% d.c. feedback is applied from the junction point of the power stage to the base of Q1 so the potential of the junction point is always maintained at the same level.

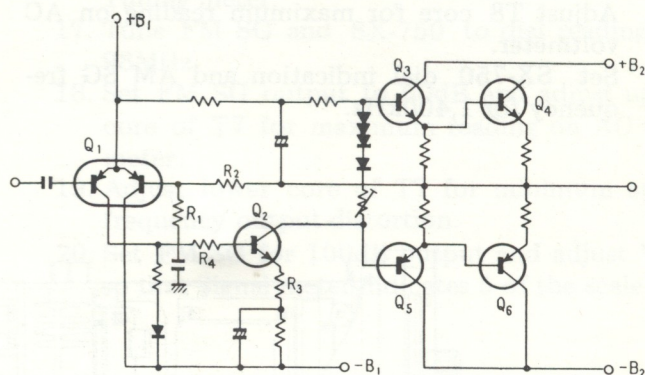


Fig. 13

5.9 POWER SUPPLY

Two windings are provided in the power transformer secondary and each is separately bridge rectified. One of these is sent as ± 48 VDC to the voltage stabilizer circuit to become 13V, 33V and -37V regulated voltages for supply to each assembly.

The other secondary voltage is bridge rectified and becomes $\pm 4\text{IV}$ or supply to the power amplifier predriver stage. Extremely low power supply impedance is maintained by a $15,000\mu\text{F}$ electrolytic capacitor.

6. ADJUSTMENTS

6.1. AM SECTION

1. Set function switch to AM.
2. Connect AM signal generator through 1k-ohm resistor to AM antenna terminal.
3. Set DUPLICATE switch to OFF and connect an AC voltmeter to TAPE 1 REC jacks.
4. Set AM SG for 400Hz 30% modulation 74dB output.
5. Set SX-750 dial indication and AM SG frequency for 600kHz.
6. Adjust T8 core for maximum reading on AC voltmeter.
7. Set SX-750 dial indication and AM SG frequency for 1,400kHz.
8. Adjust TC2 for maximum reading on AC voltmeter.
9. Set AM SG for 30dB output.
10. Set SX-750 dial indication and AM SG frequency for 600kHz.
11. Adjust T8 and bar antenna core for maximum reading on AC voltmeter.
12. Set SX-750 dial indication and AM SG frequency for 1,400kHz.
13. Adjust TC2, TC4 for maximum reading on AC voltmeter.
14. Repeat steps 10~13 to eliminate variations in AC voltmeter readings.

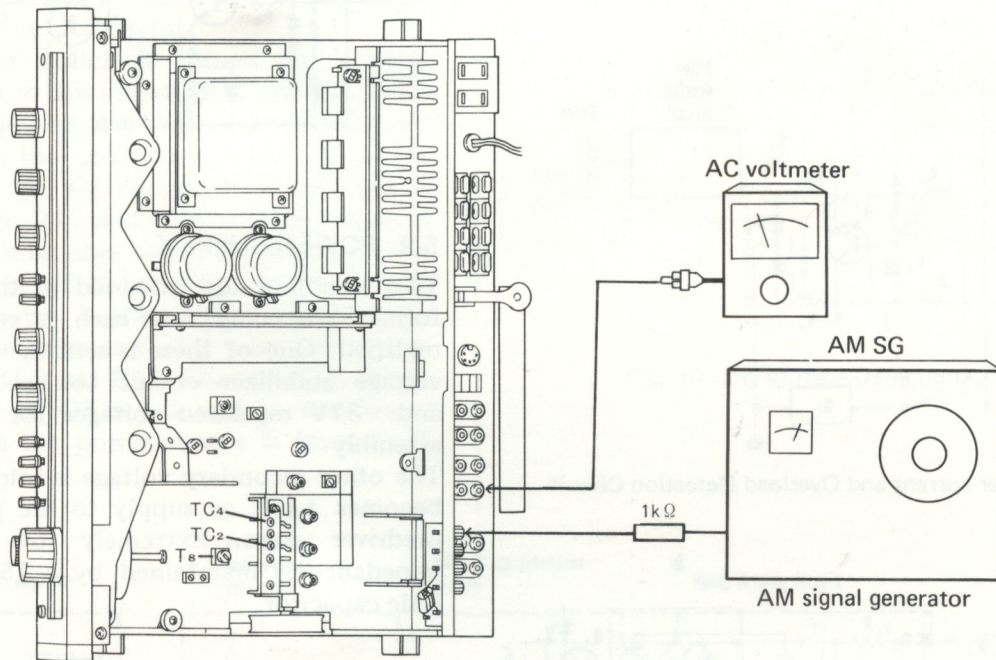


Fig. 14

6.2 FM SECTION

FM Tracking

1. Connect measuring equipment as shown in Fig. 15.
2. Set FM SG to 100% modulation ($\pm 75\text{kHz}$ deviation) at 400Hz and 100dB output.
3. On SX-750 front panel, set FM switch to ON, FM muting to OFF and VOLUME control to minimum position.
4. Set TC6 to center of turning range.
5. Tune FM SG and SX-750 to dial readings of 90MHz.
6. Adjust T4 core for maximum indication on Signal meter.
7. Adjust T6 core for center of scale indication on Tuning meter.
8. Set FM SG output to 8~10dB and adjust cores of T1, T2, and T3 for maximum indication on Signal meter.
9. Tune FM SG and SX-750 to dial readings of 106MHz.
10. Set FM SG output to 100dB and adjust TC6 for maximum indication on Signal meter.
11. Set FM SG output to 8~10dB and adjust TC1, TC3, TC5 and TC6 for maximum indication on Signal meter.
12. Repeat above adjustment steps 5~11 and adjust for optimum conditions.
13. Tune FM SG and SX-750 to dial readings of 90MHz.
14. Adjust T5 core for maximum indication on Signal meter.
15. Detune SX-750 (to noise only).
16. Adjust T6 for center of scale indication on Tuning meter.
17. Tune FM SG and SX-750 to dial readings of 98MHz.
18. Set FM SG output to 60dB and adjust upper core of T7 for maximum reading on AC voltmeter.
19. Adjust lower core of T7 for minimum audio frequency output distortion.
20. Set FM SG for 100dB output and adjust VR1 so that Signal meter indicates 5 of the scale.

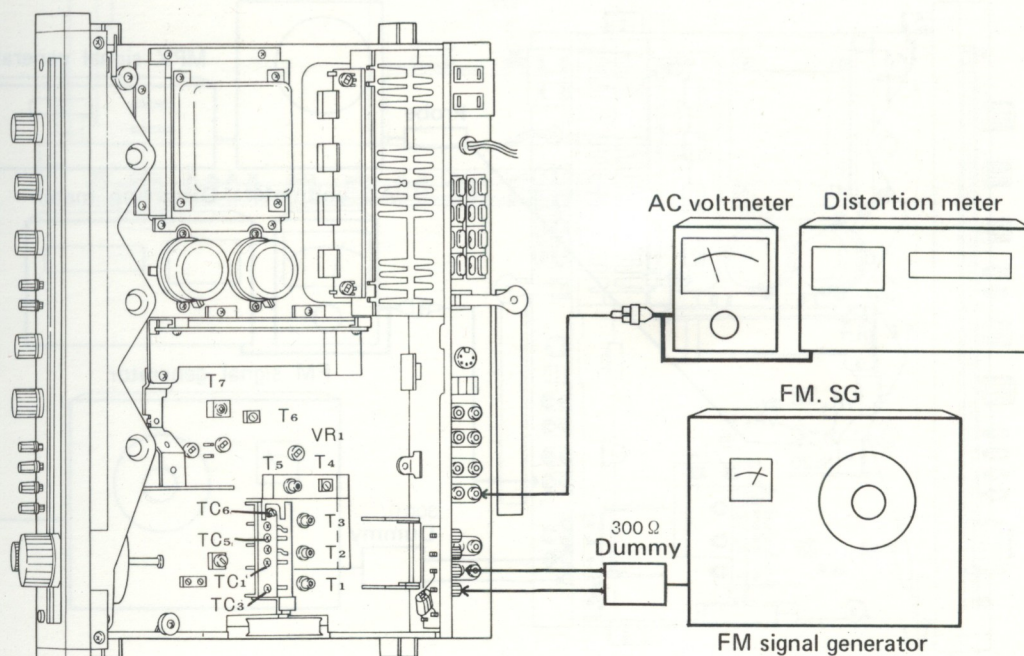


Fig. 15

6.3 MPX Adjustment

1. Connect measuring equipment as shown in Fig. 16.
2. Tune FM SG and SX-750 to dial readings of 98MHz.
3. Set FM SG for 60dB unmodulated output.
4. Connect the output signal (19kHz) of MPX SG PILOT OUT terminal to the horizontal input of an oscilloscope, and pin 20 of the tuner assembly (AWE-073) via a probe to the oscilloscope vertical input.
5. Adjust VR2 so that lissajous pattern displayed on oscilloscope becomes stationary (Fig. 16).
6. Set MPX SG to 67.5kHz deviation at 1kHz for left and right channels, and to 7.5kHz deviation for 19kHz pilot signal.
7. Adjust T5 core for minimum audio frequency distortion. Take care to turn core only within $\pm 180^\circ$.
8. Adjust VR3 for minimum signal leakage from R channel to L channel, and from L channel to R channel.

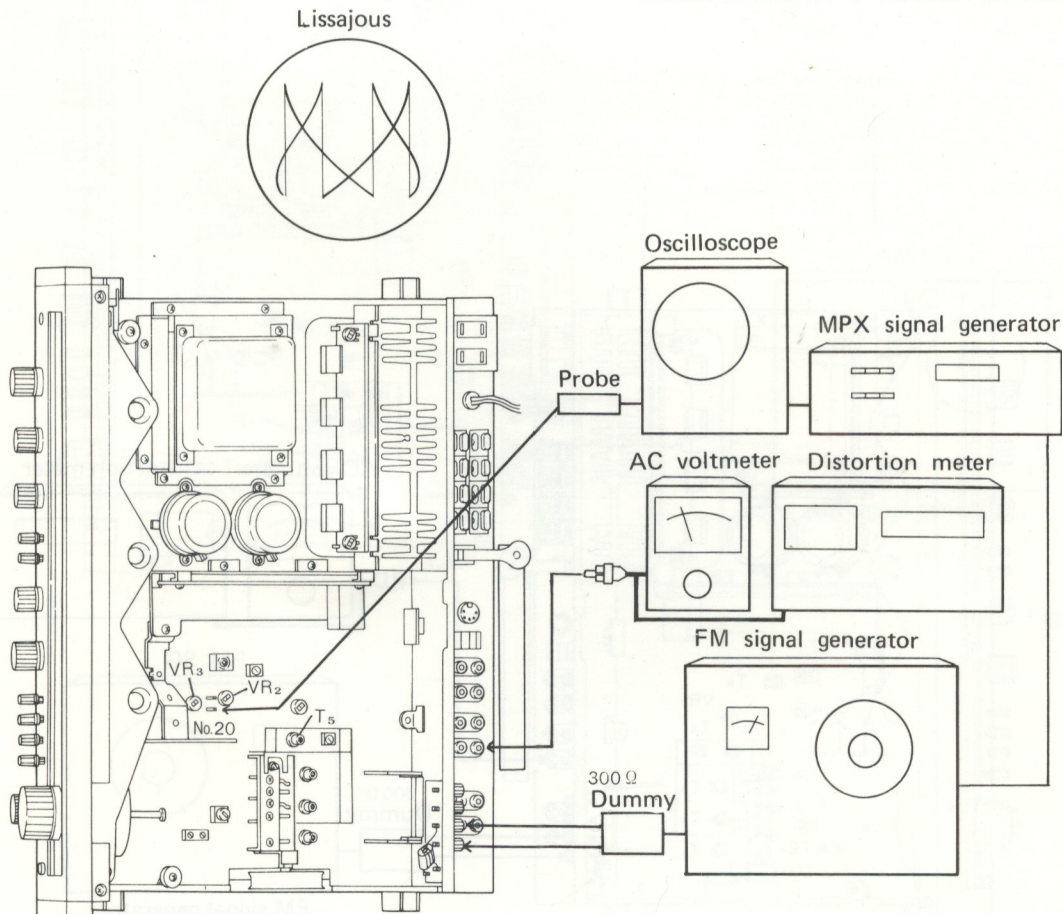


Fig. 16

6.4 POWER AMPLIFIER SECTION

Idle Current Adjustment

1. Connect DC voltmeter as shown in Fig. 17.
2. Do not connect load to speaker terminals. Set VOLUME control to minimum (fully counter-clockwise).
3. Turn VR1 and VR2 (shown in Fig. 17) fully counter-clockwise, then set POWER switch to ON.
4. 1~2 minutes after turning on the power, adjust VR3 (L channel) and VR4 (R channel) for 50mV indication on DC voltmeter.
5. 20 minutes after turning on the power, again adjust VR1 and VR2 for 30mV indication on DC voltmeter.

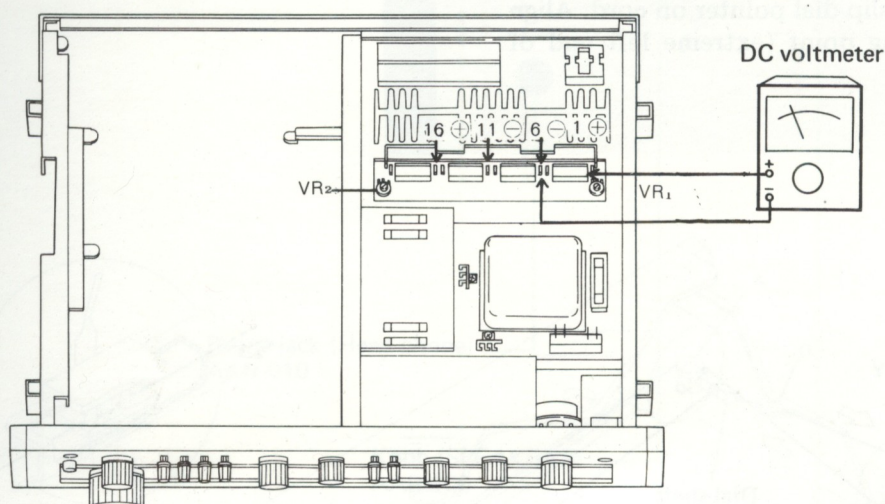


Fig. 17

7. DIAL CORD STRINGING

1. Remove the wooden cover and the front panel.
2. Turn tuning drum fully clockwise (as viewed from X direction in Fig. 18).
3. Tie one end of cord to stud on inner section of tuning drum (more easily performed by loosening setscrew and temporarily removing tuning drum from shaft).
4. Route cord through tuning drum cutout, make a half turn around the drum, then route in sequence to pulley A—dial pointer—pulley B—pulley C.
5. Wind cord 3 turns clockwise (as viewed from rear panel) around tuning shaft, then route to pulley D.
6. Wind cord two turns around tuning drum and tie to spring hook so that tension is applied to the cord.
7. Turn TUNING knob and confirm normal cord motion, then trim off excess cord.
8. With tuning drum at step 1 setting, restrain cord from moving and slip dial pointer on cord. Align it with the starting point (extreme left end of frequency scale).

Dial Pointer Installation Caution

Metal portion of dial pointer is plated. If this section is touched directly by hand or fingerprints and other impurities, it is difficult to remove dirt from aventurine finish. As this is not desirable in terms of both appearance and anticorrosion, take extreme care not to touch the metal section when handling the dial pointer.

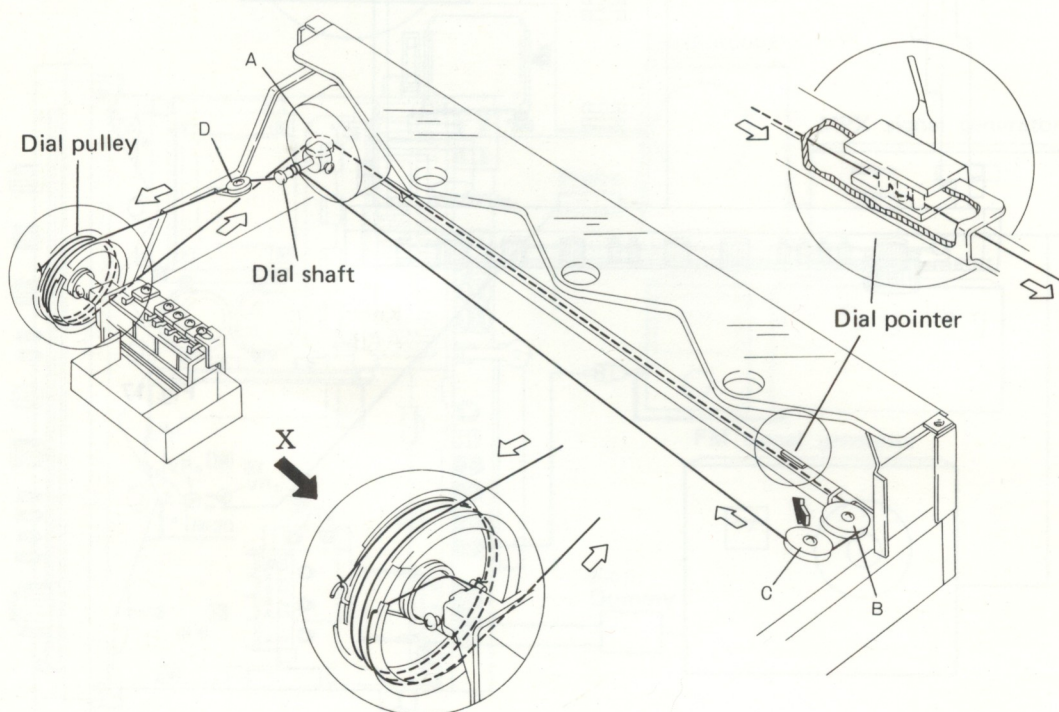
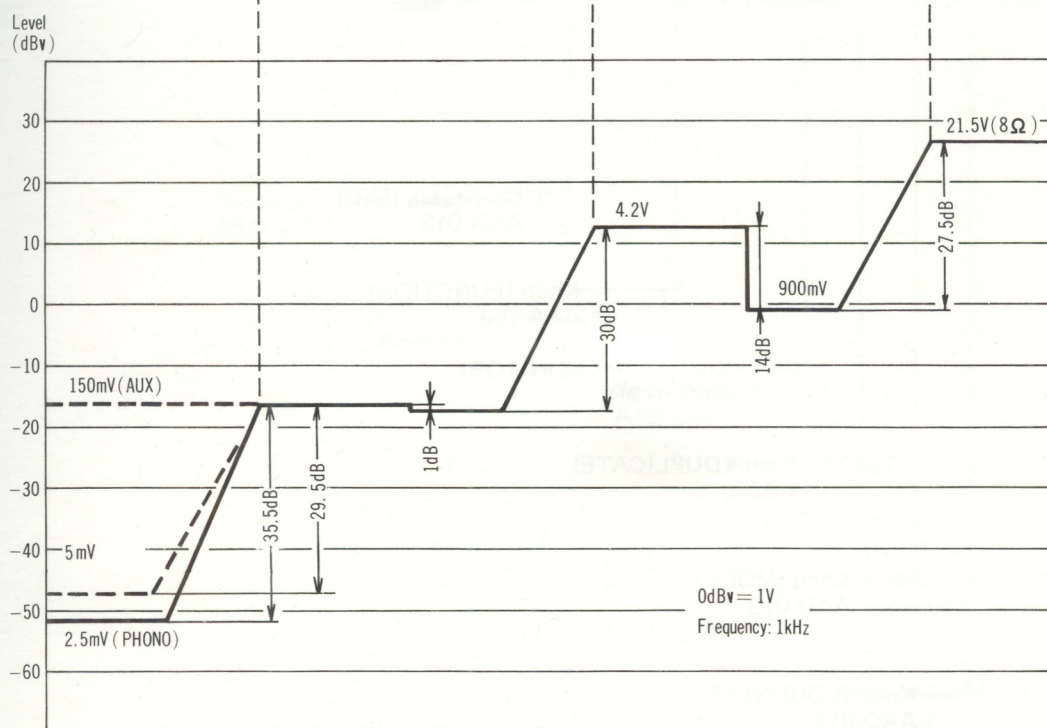
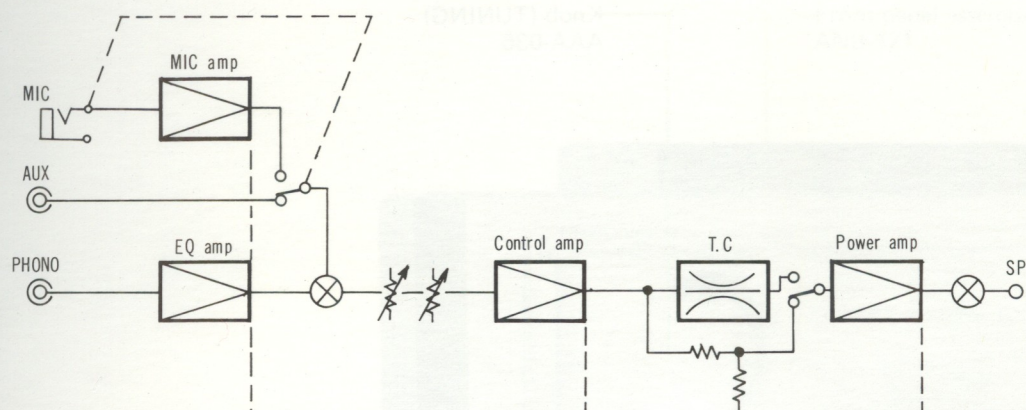


Fig. 18

8. LEVEL DIAGRAM



9. DISASSEMBLY

Top Cover (Fig. 19)

Take out 2 screws each at left and right (total 4 screws) to remove.

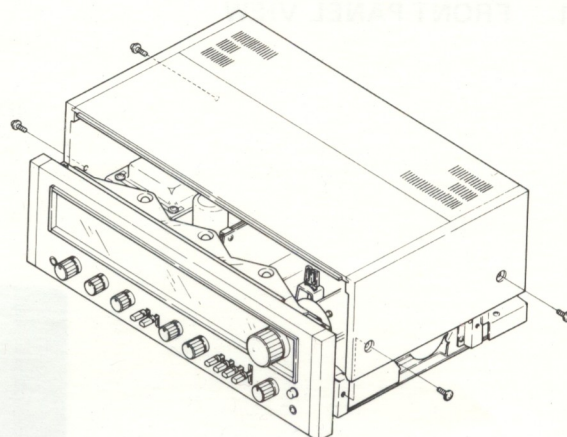


Fig. 19

Bottom Plate (Fig. 20)

Take out screws ①~⑪ to remove.

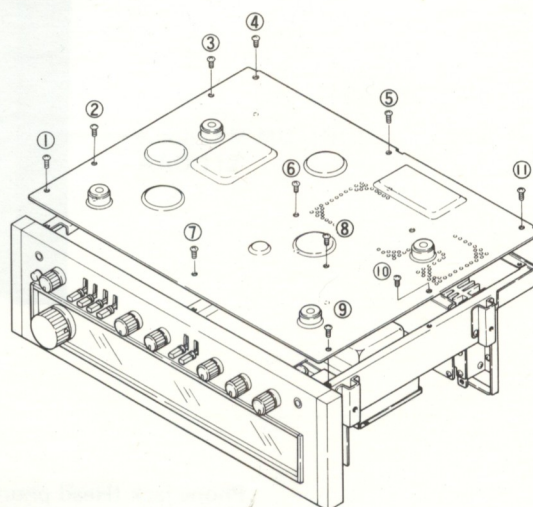


Fig. 20

Front Panel (Fig. 21)

Pull off all knobs and remove shaft nuts of SPEAKERS and FUNCTION switches. Front panel can then be removed by taking out screws ⑫ & ⑬.

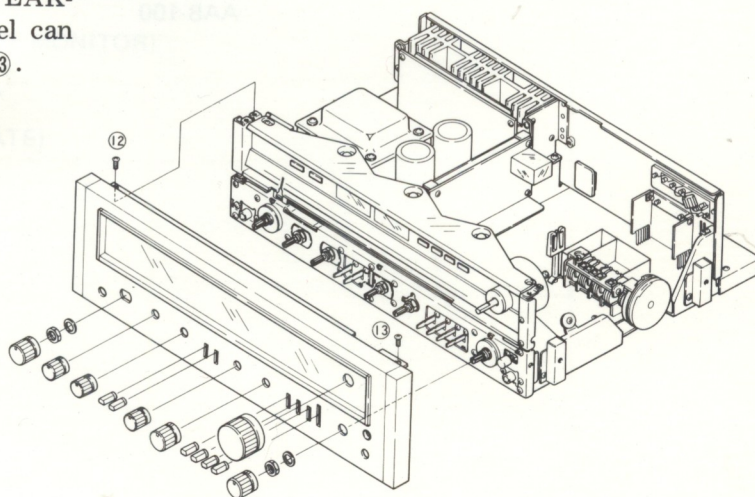
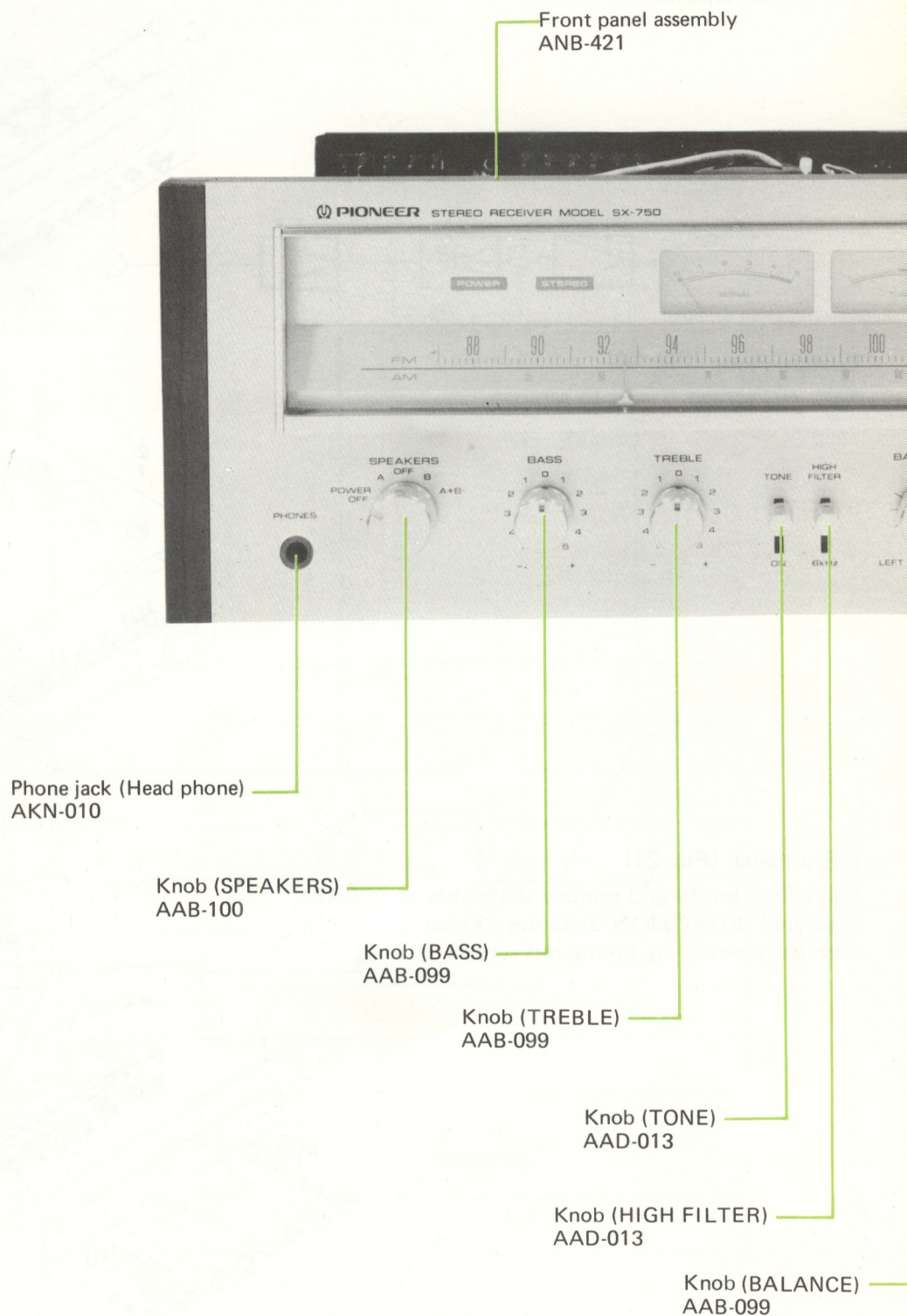
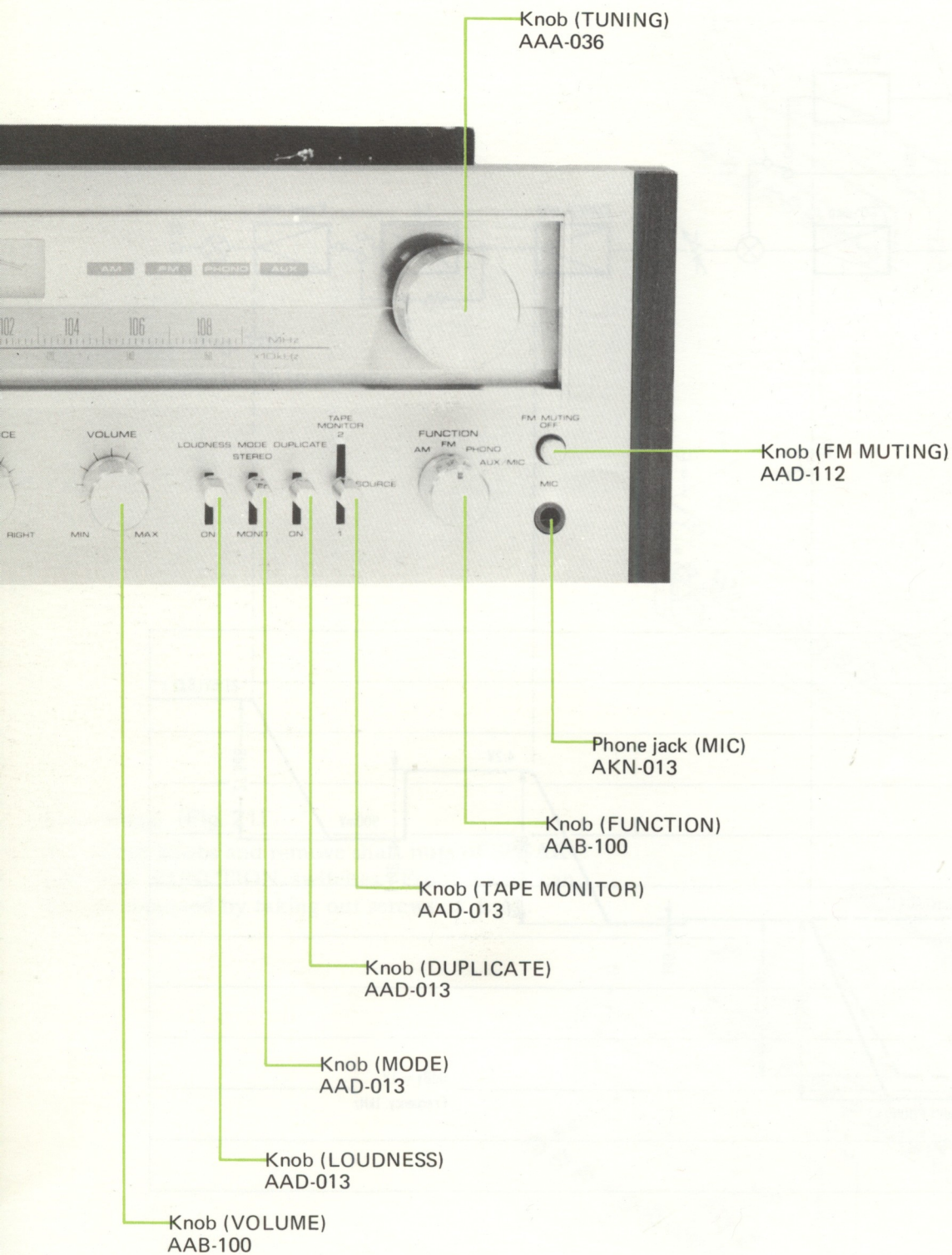


Fig. 21

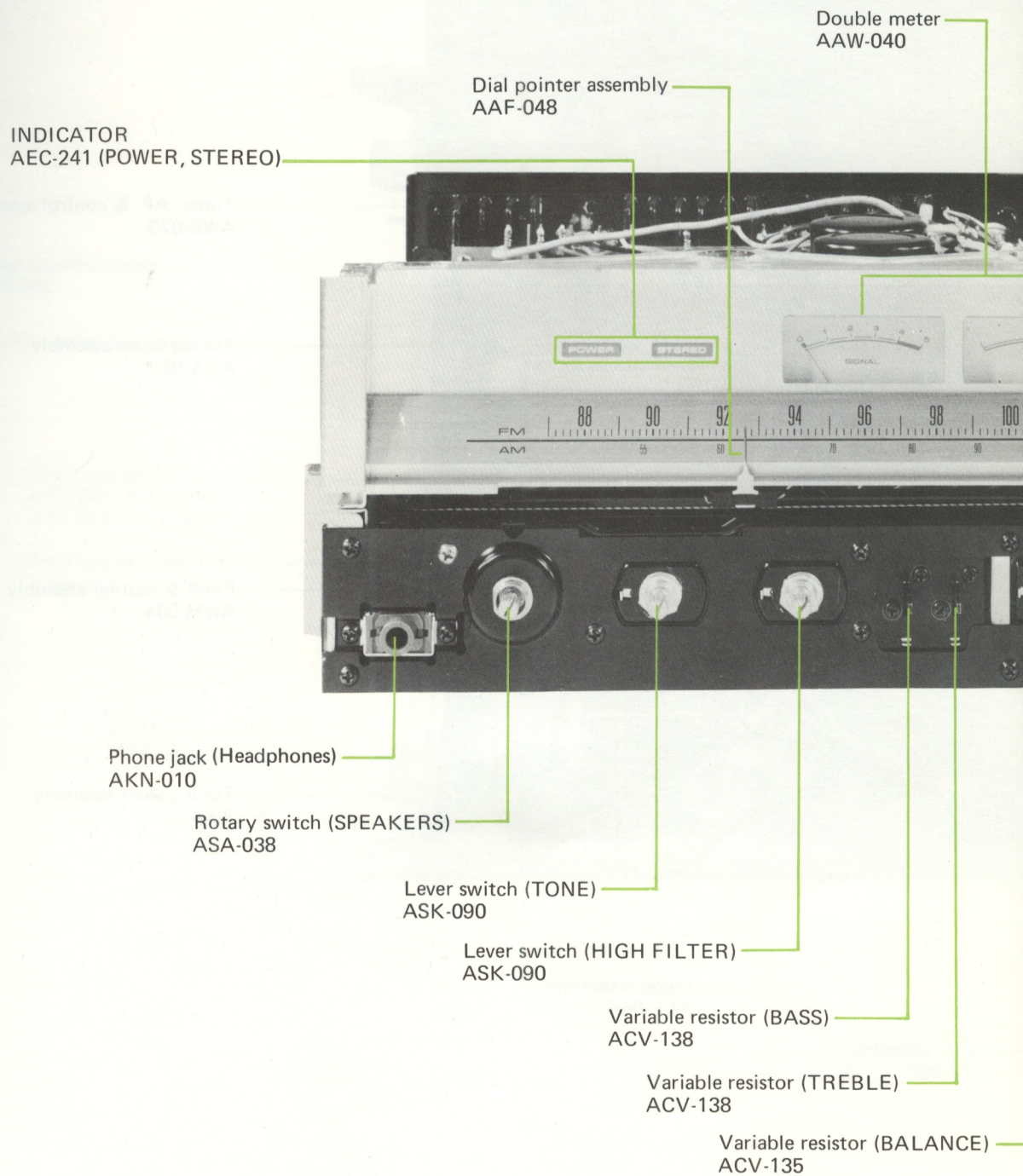
10.PARTS LOCATION

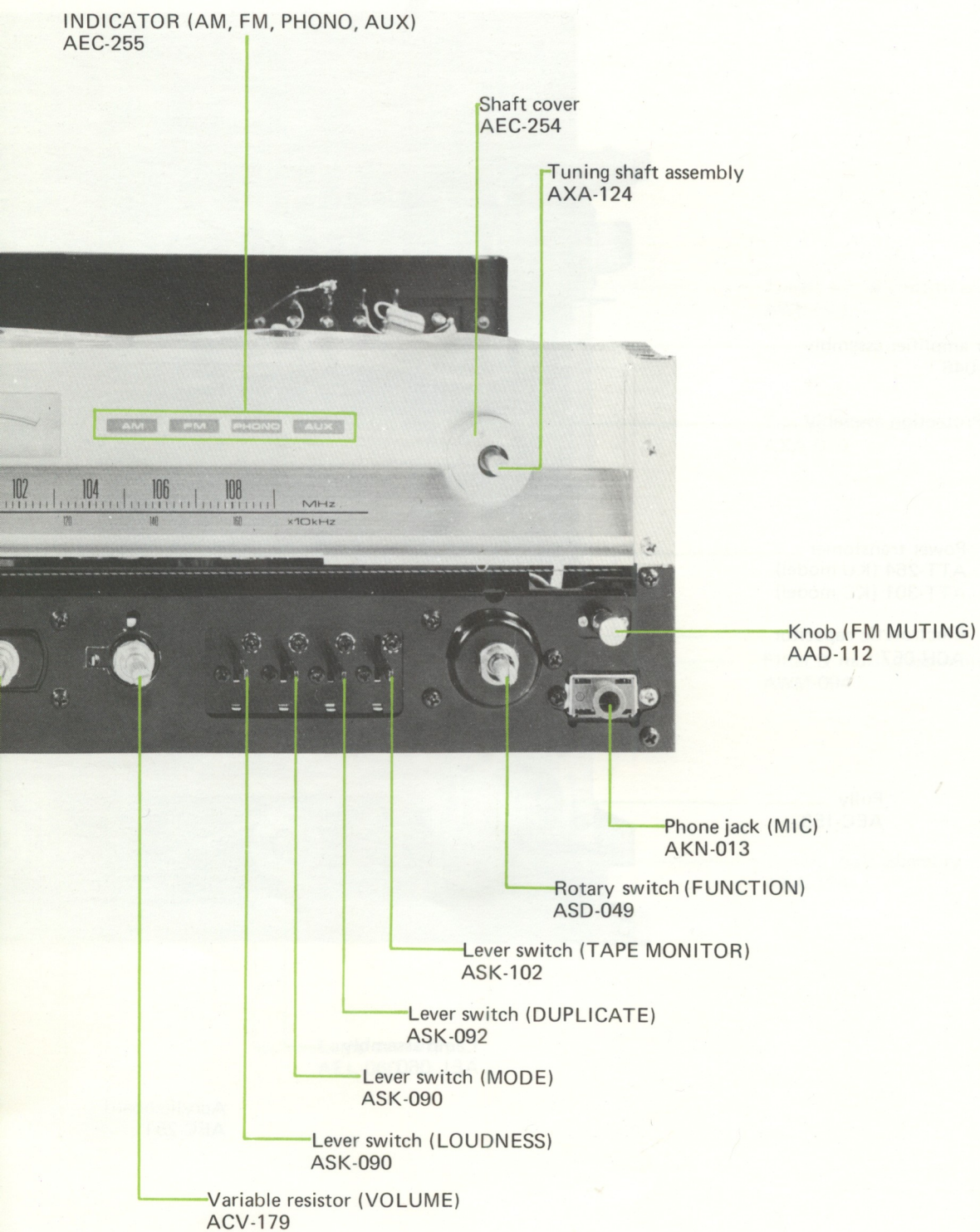
10.1 FRONT PANEL VIEW



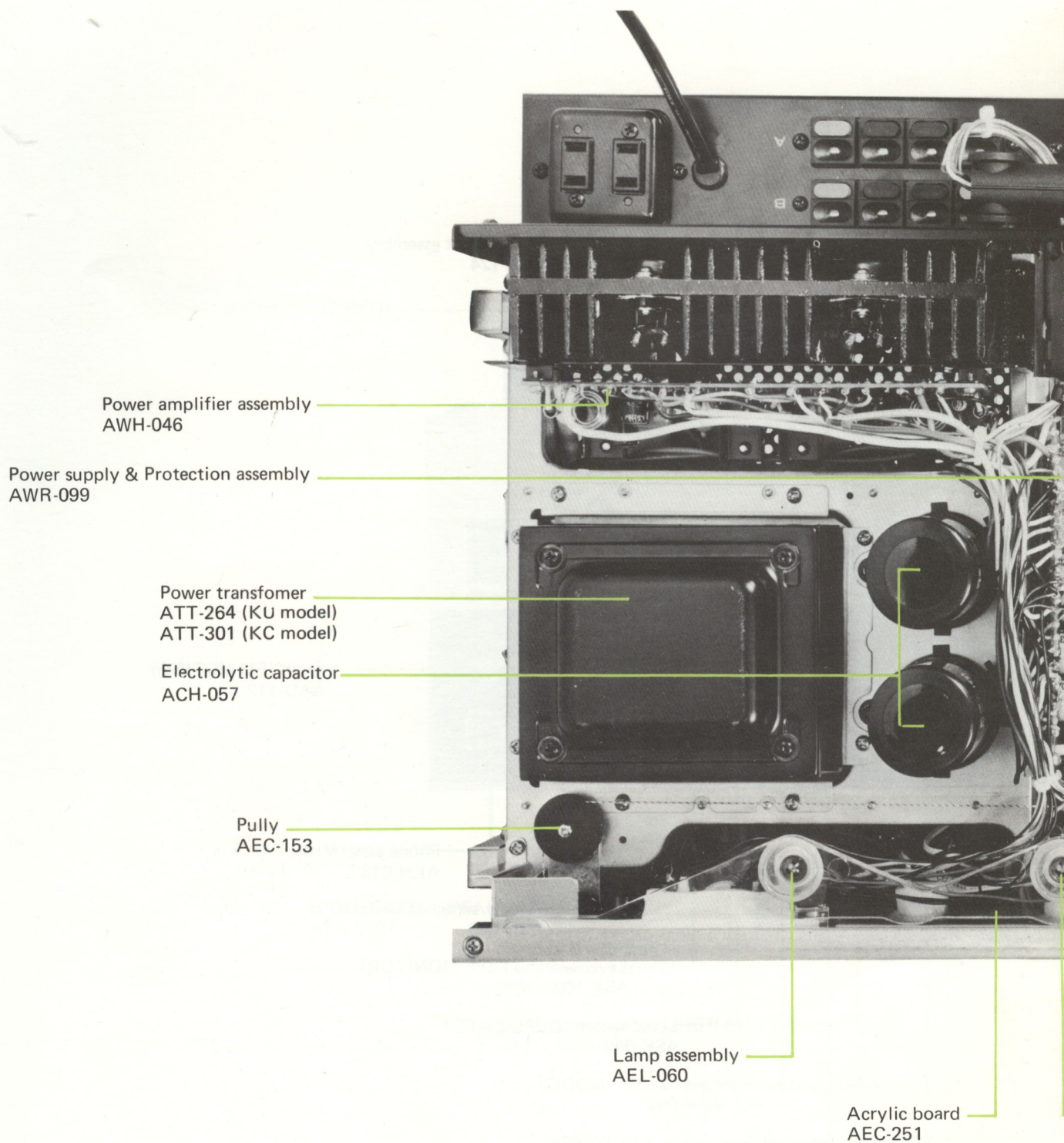


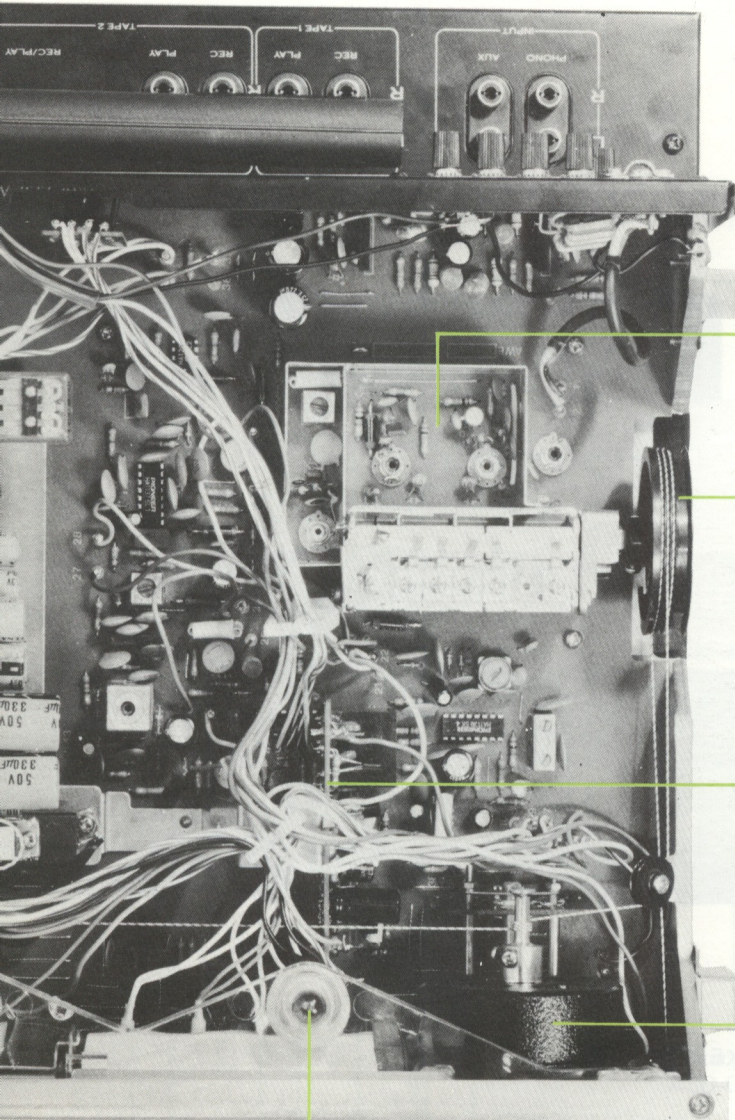
10.2 FRONT PANEL VIEW (with removed Front panel)





10.3 TOP VIEW





Tuner, AF, & control assembly
AWE-073

Tuning drum assembly
AXA-070

Filter & muting assembly
AWM-094

Tuning shaft assembly
AXA-124

Lamp assembly
AEL-060

Lamp assembly
AEL-060

10.4 BOTTOM

Tone contr
AWG-046

Rotary switch (SPEAKER)
ASA-038

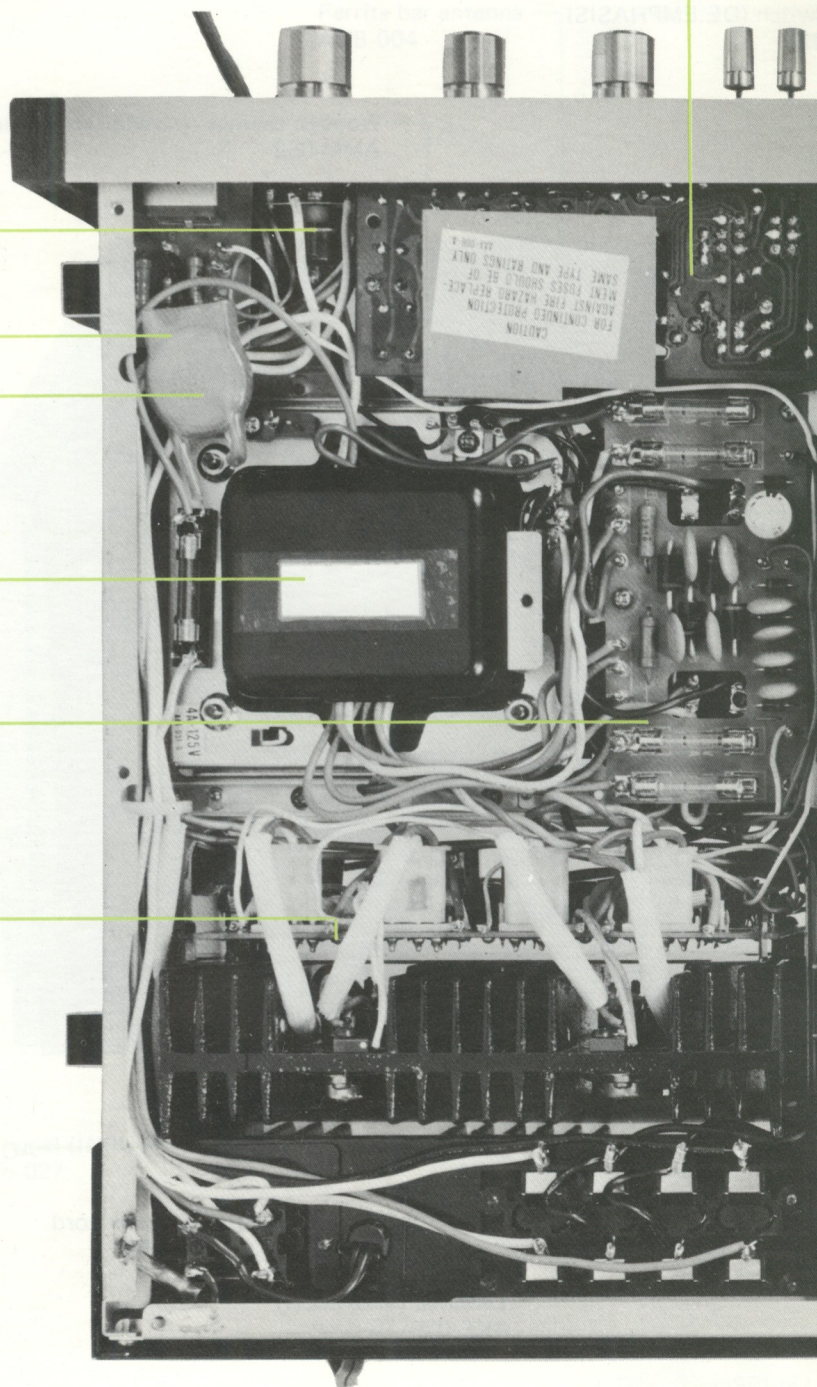
Cover

Capaciter

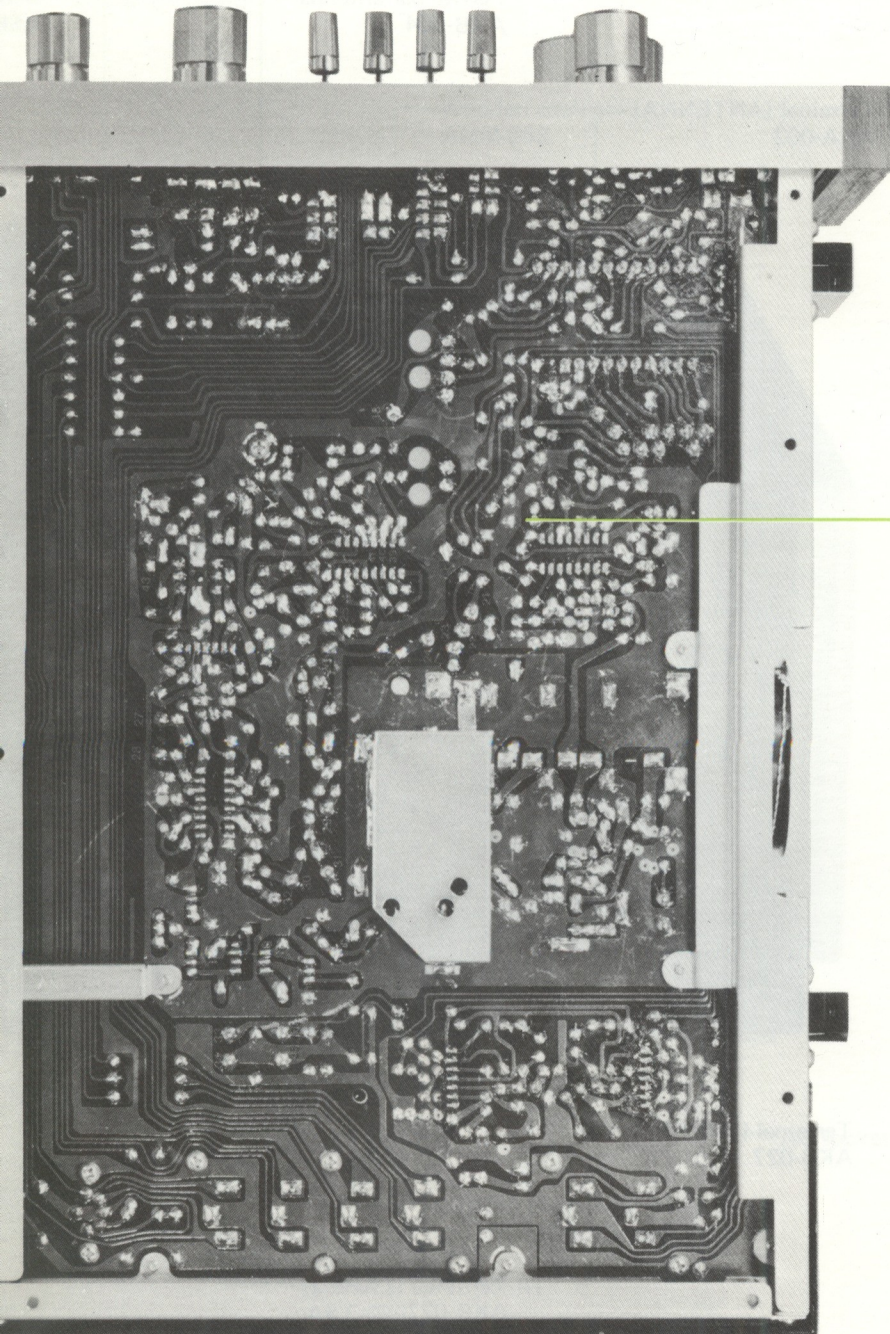
Power transfomer
ATT-264

Power supply assembly
AWR-100

Power amplifier assembly
AWH-046

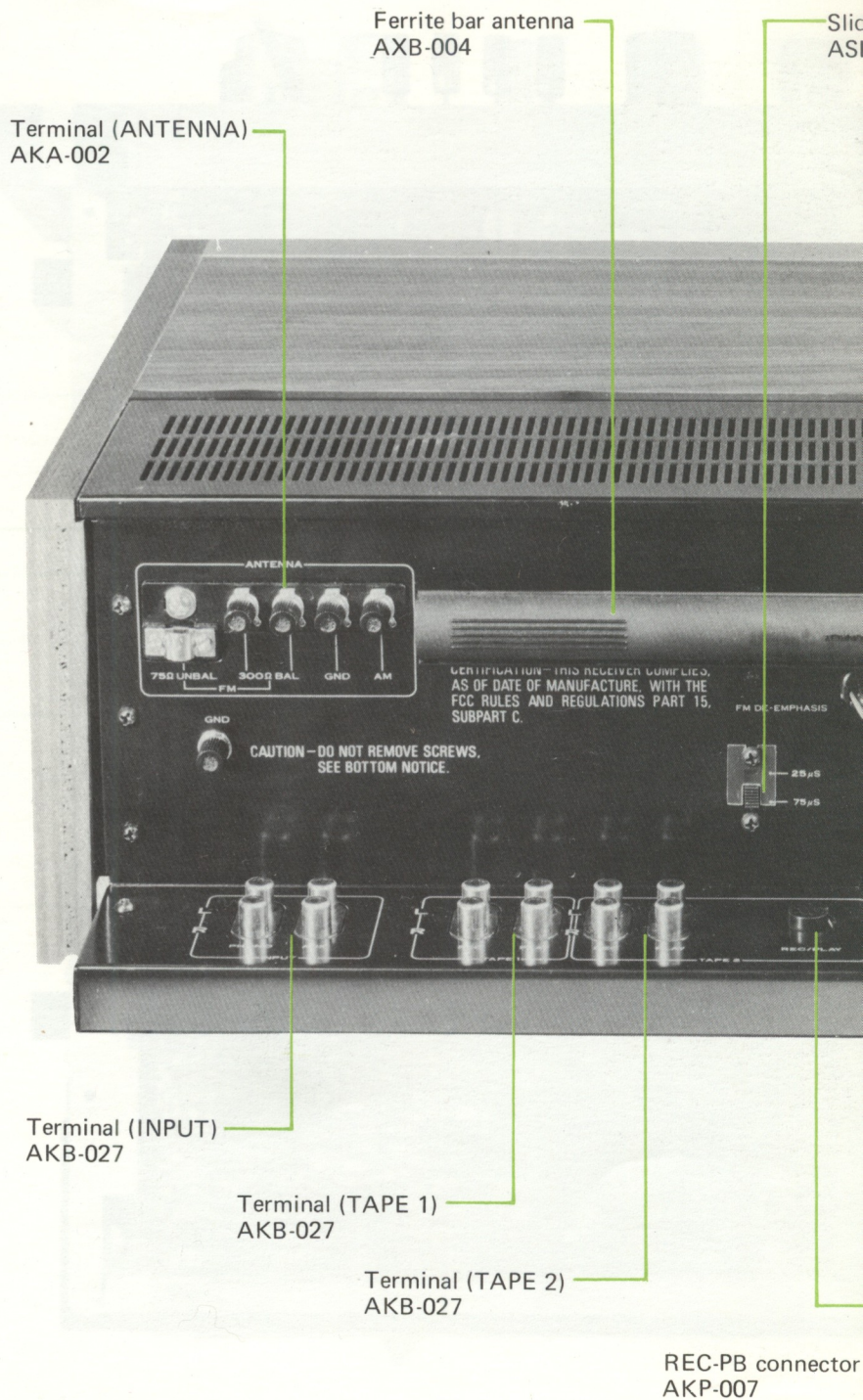


assembly



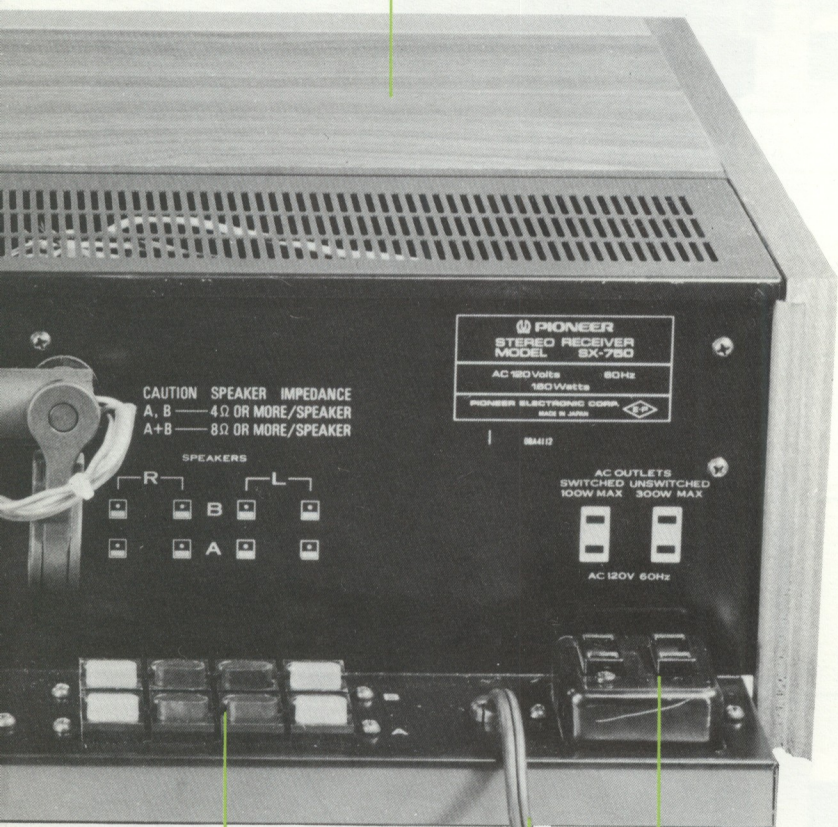
Tuner, AF & control assembly
AWE-073

10.5 REAR VIEW



switch (DE.EMPHASIS)
015

Wooden cabinet
AMM-053



AC socket cover

AC power cord
ADG-005

Terminal (SPEAKER)
AKE-029

cket (5P)

11.EXPLODED VIEW

A

B

C

D

1

2

3

PART II
on page 38

Screw 3x6
ABA-048

PART III
on page 39

Electrolytic capacitor
ACH-057

Shaft
M49-025

Screw 3x6
ABA-048

Pulley
AEC-153

Plate

PART I
on page 37

PART IV
on page 40

Screw
ABA-002

PART VI
on page 42

Screw
ABA-002

Screw 3x8
ABA-049

Washer
ANF-453

Screw 3x8
ABA-049

Washer M11
B22-009

Nut M11
B71-005

Knob (SPEAKERS, FUNCTION)
AAB-100

Knob (BASS, TREBLE, BLANCE)
AAB-099

Knob (BASS, TREBLE, BLANCE)
AAB-099

Knob (VOLUME)
AAB-100

Knob (TUNING)
AAA-036

Knob (SPEAKERS, FUNCTION)
AAB-100

Knob (TONE, HIGH FILTER)
AAD-113

Front panel
ANB-421

1

2

3

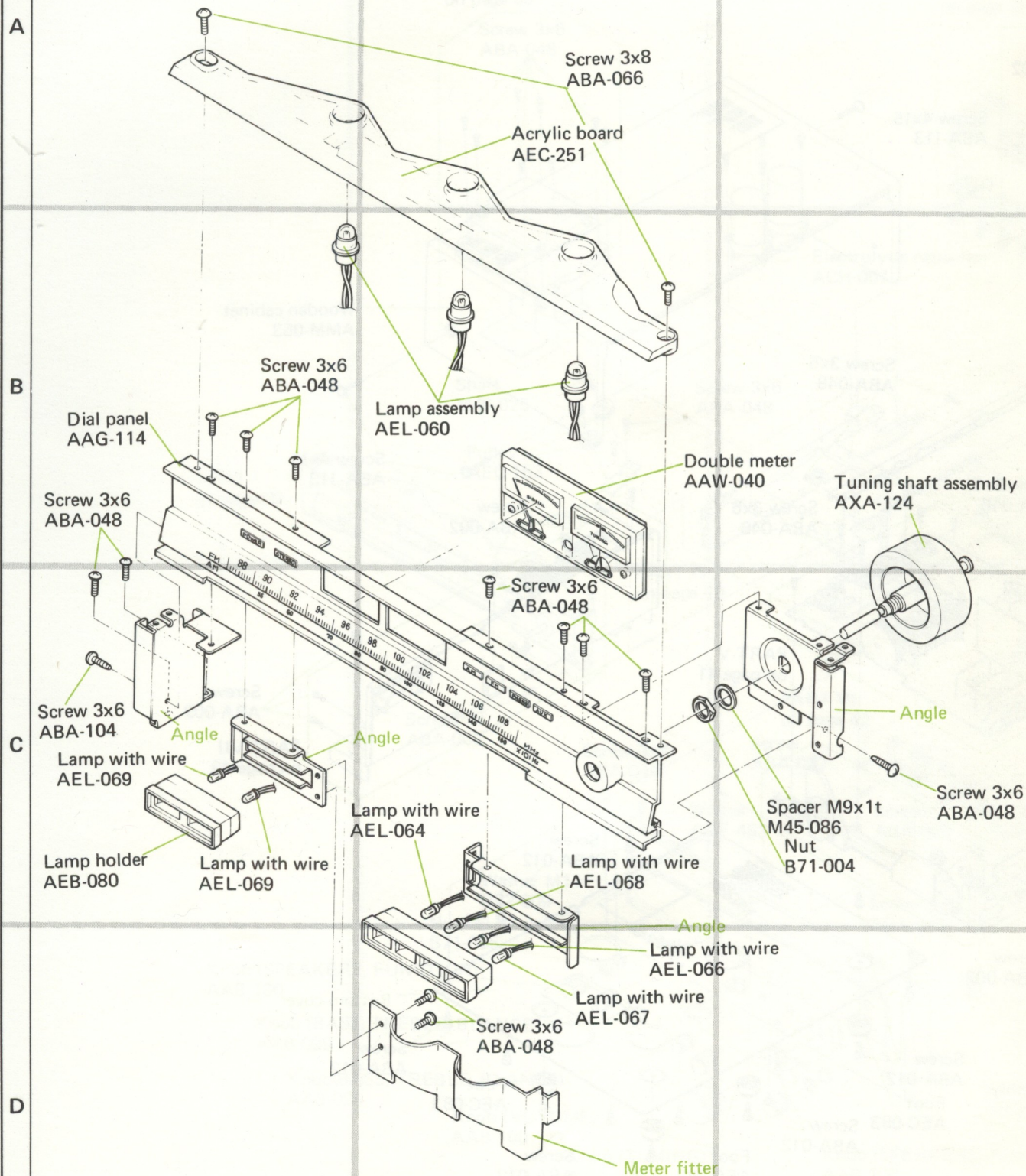
Parts indicated in green type cannot be supplied.



11.1 PART I

NOTE:

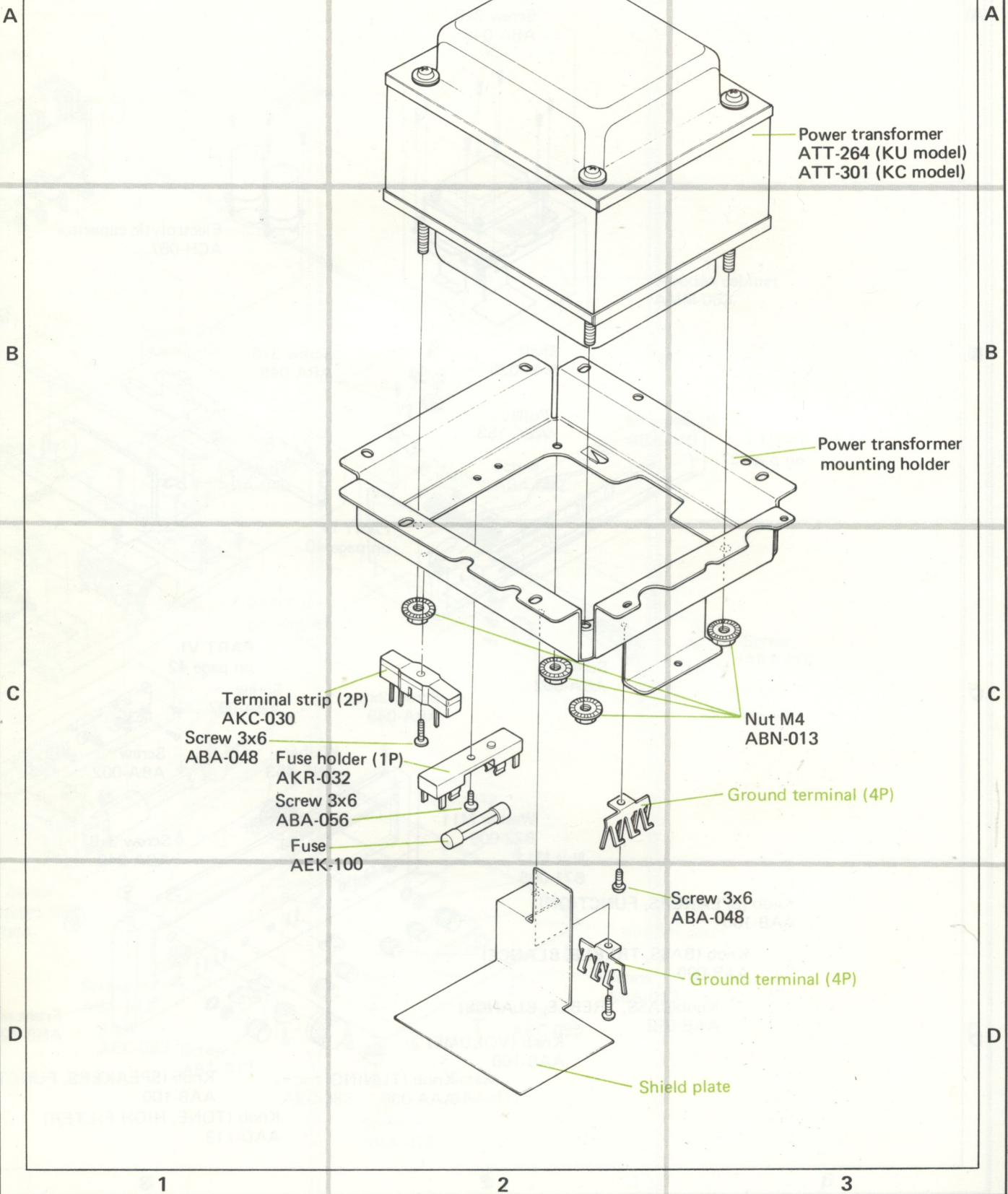
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11.2 PART II

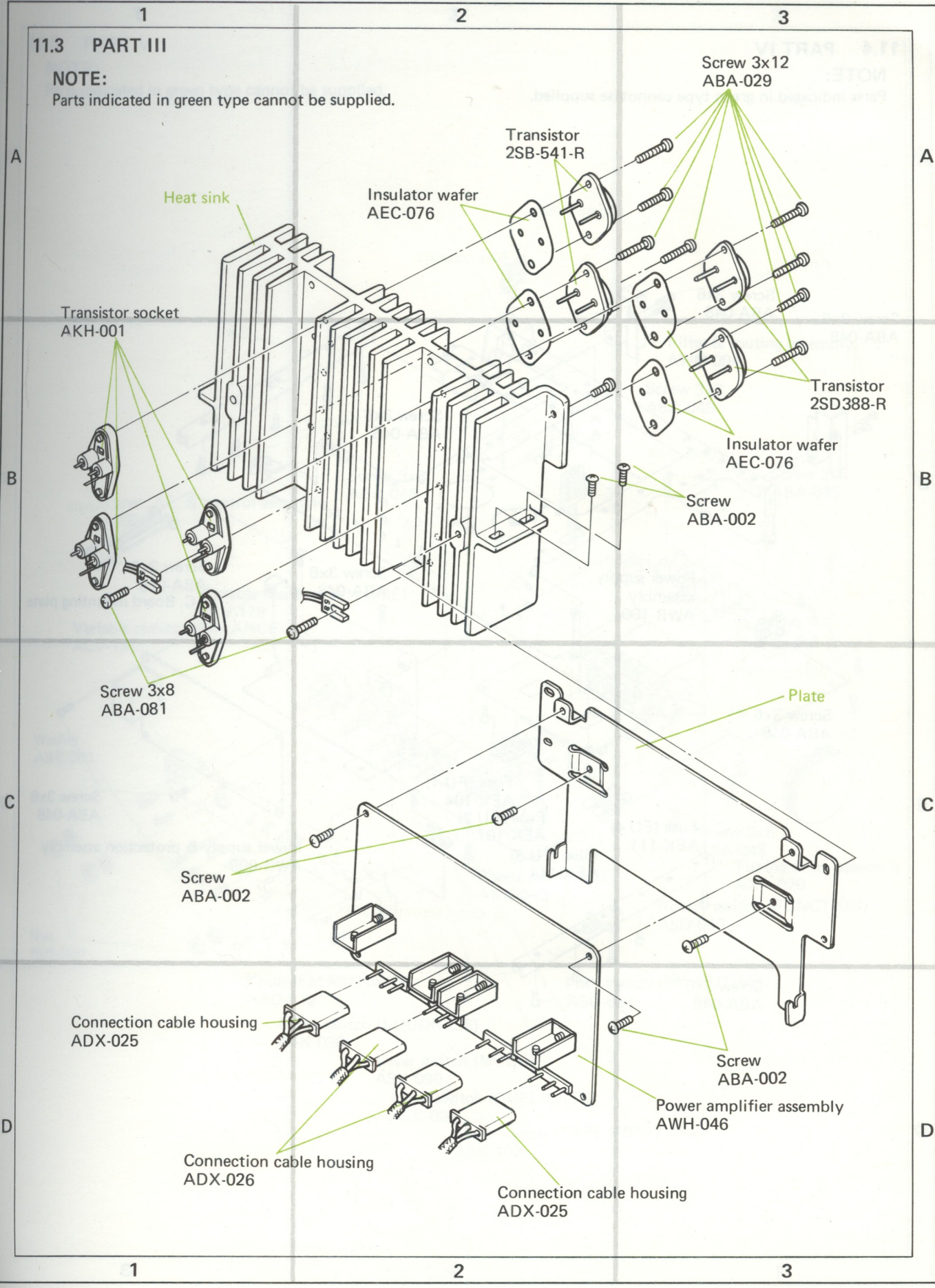
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11.3 PART III

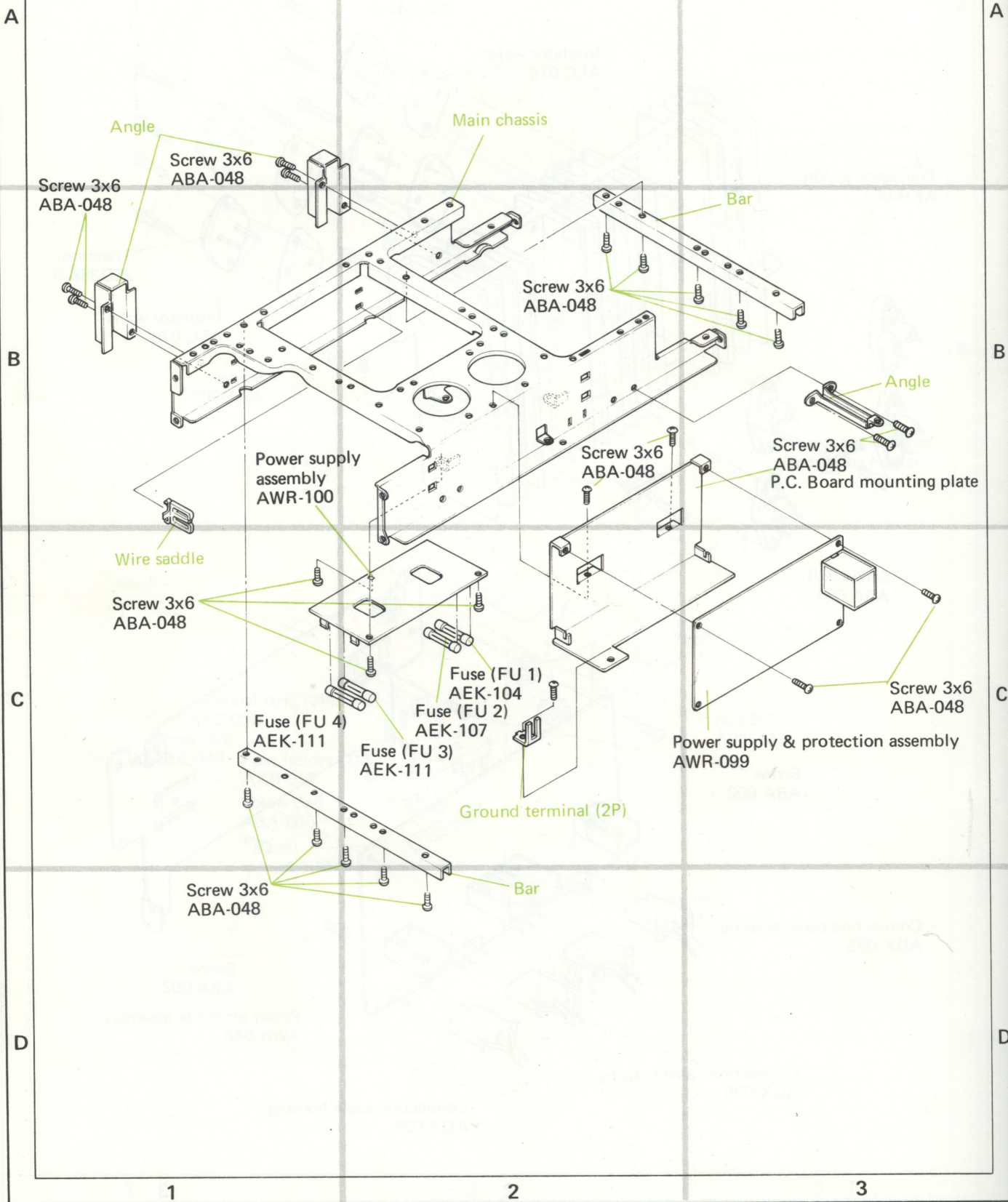
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11.4 PART IV

NOTE:

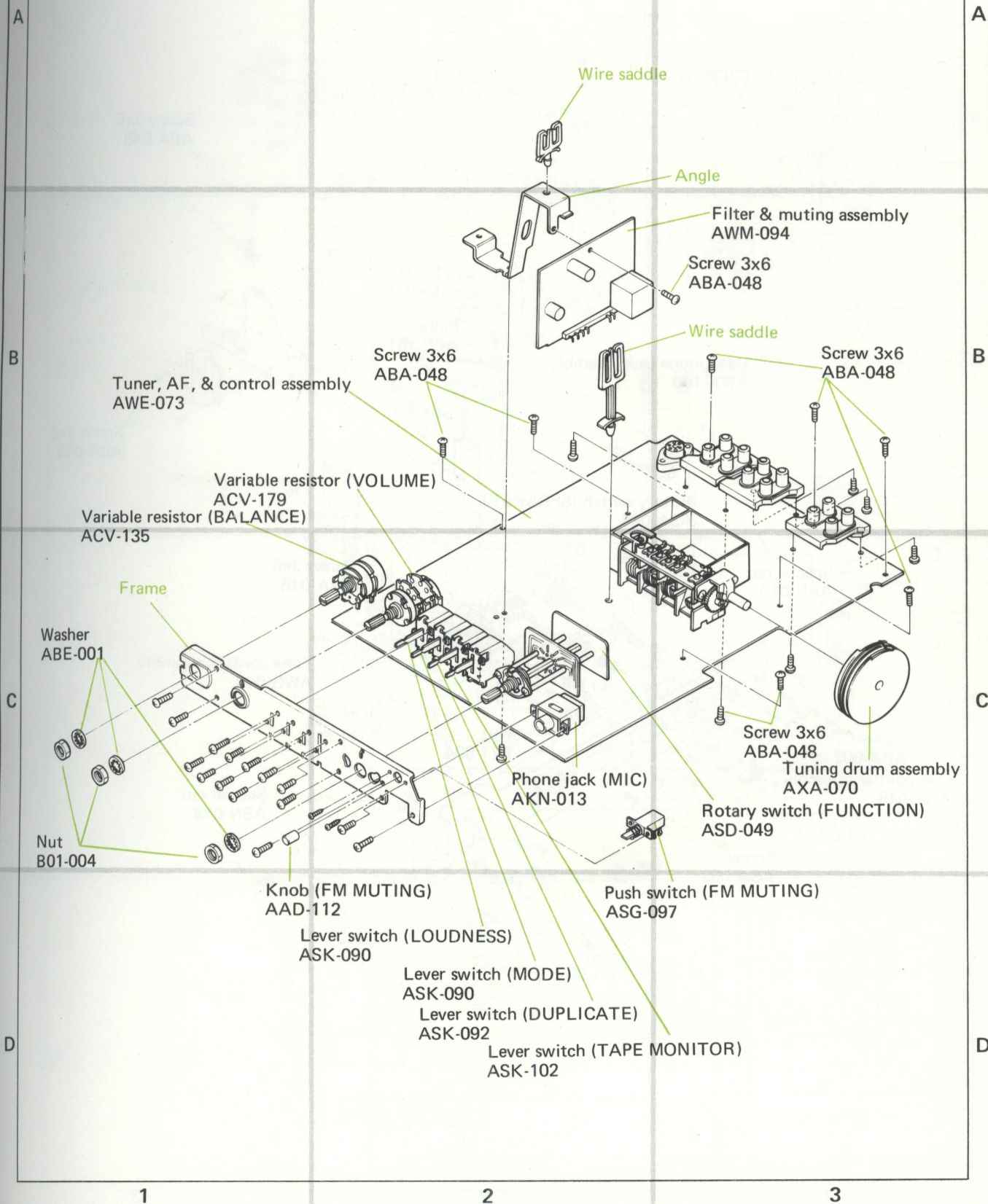
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11.5 PART V

NOTE:

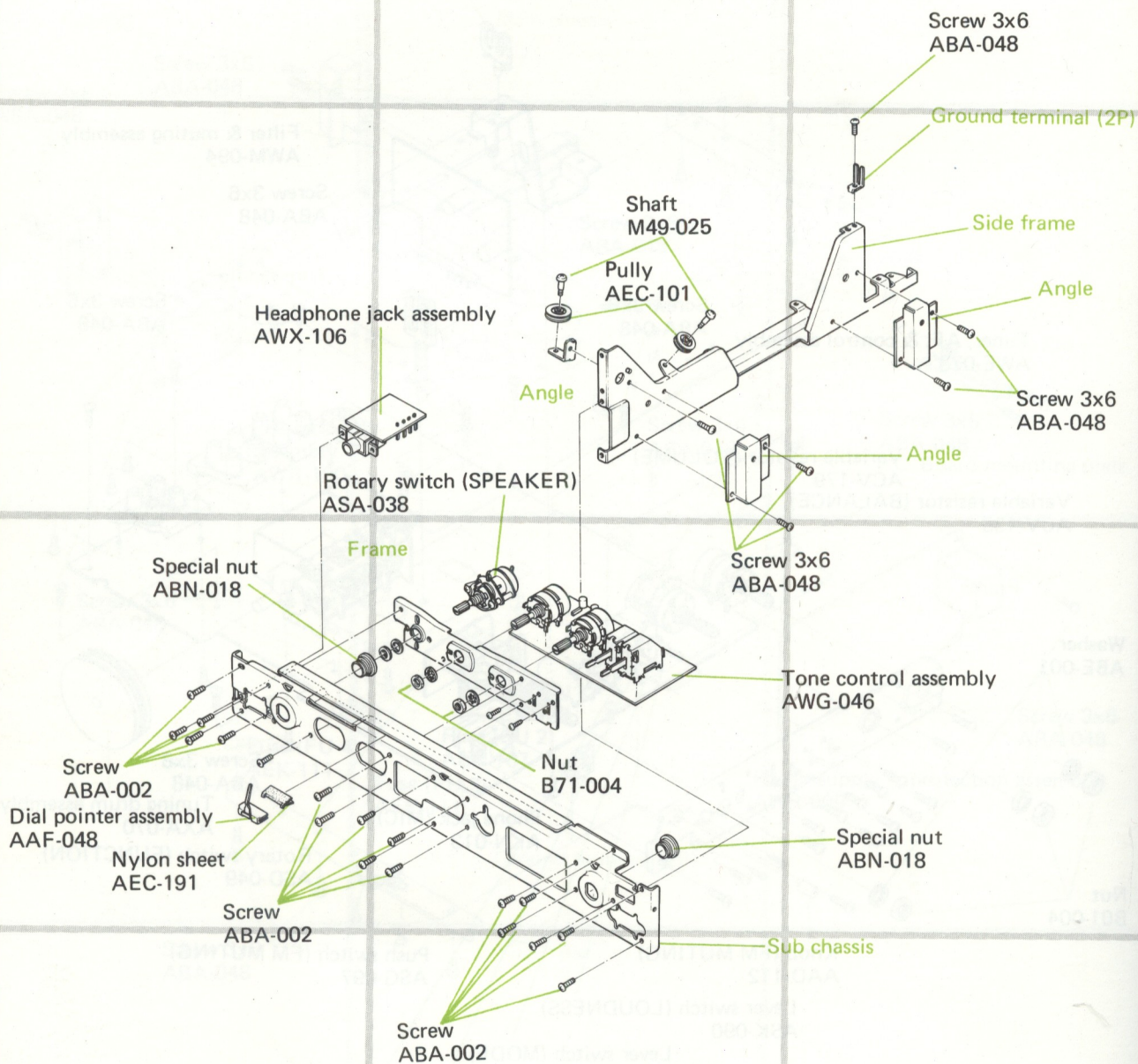
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11.6 PART VI

NOTE:

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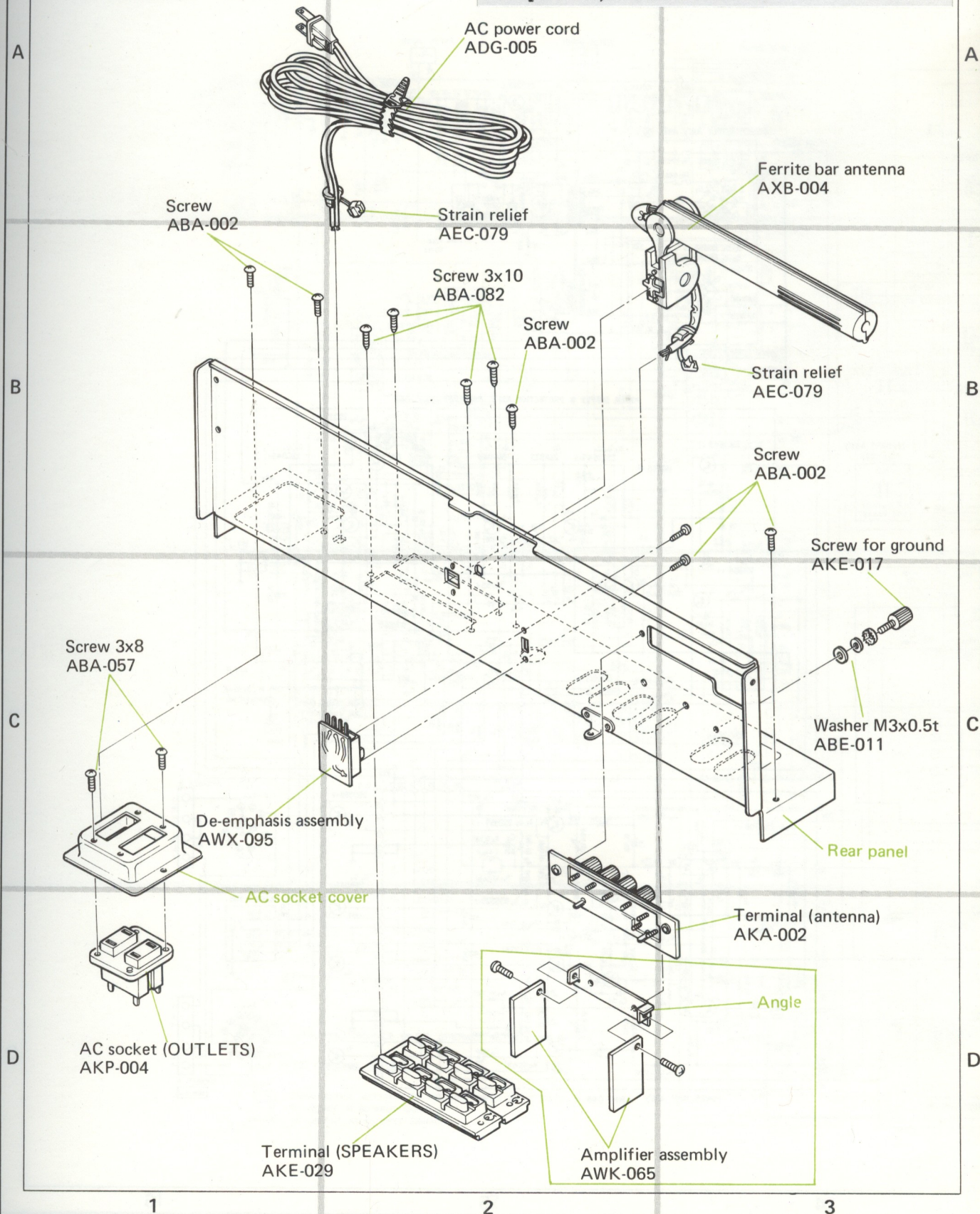


11.7 PART VII

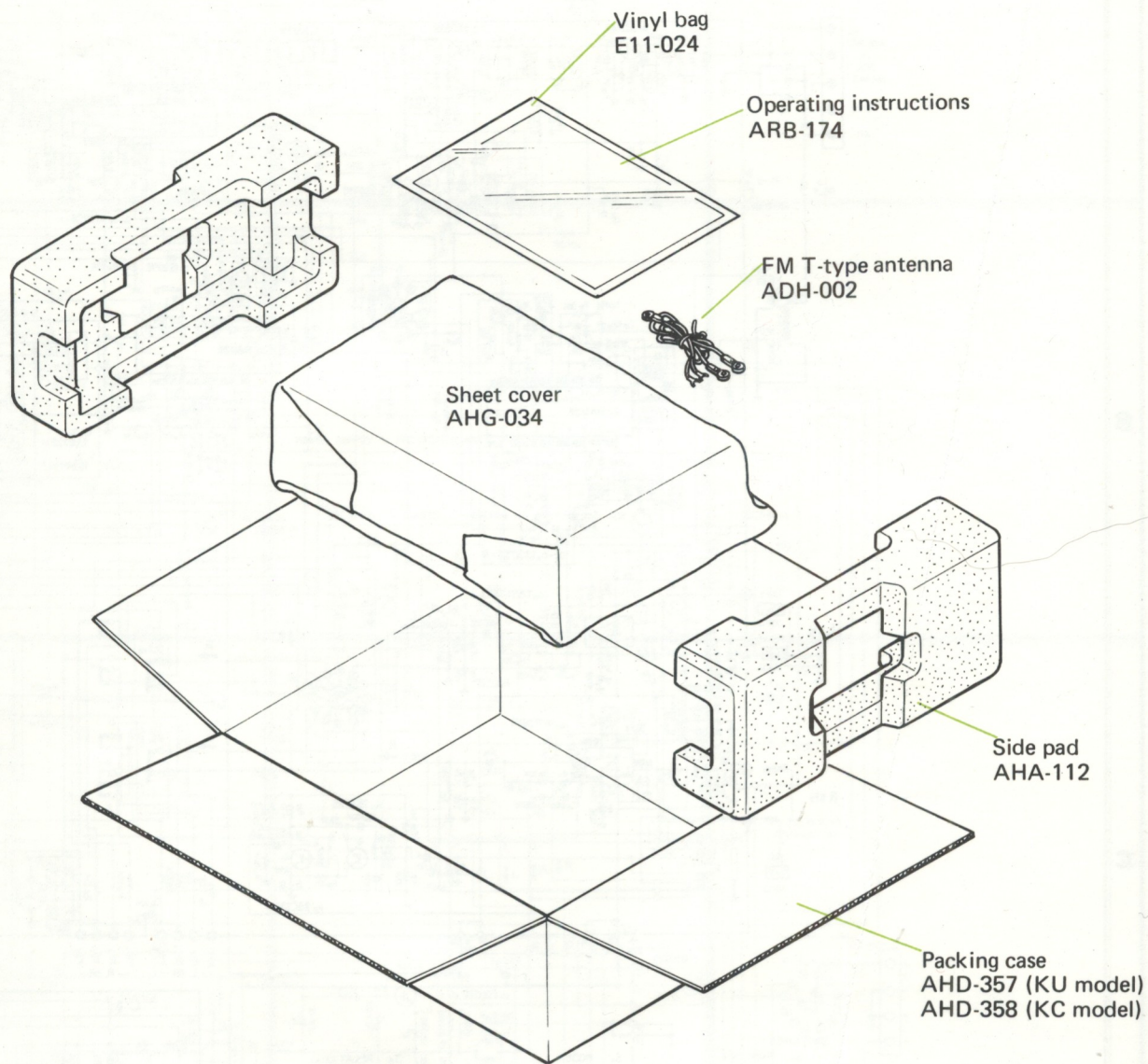
NOTE:

Parts indicated in green type cannot be supplied.

Although there are some units in the SX-750 series which do not contain green line encircled components, this is not an error.

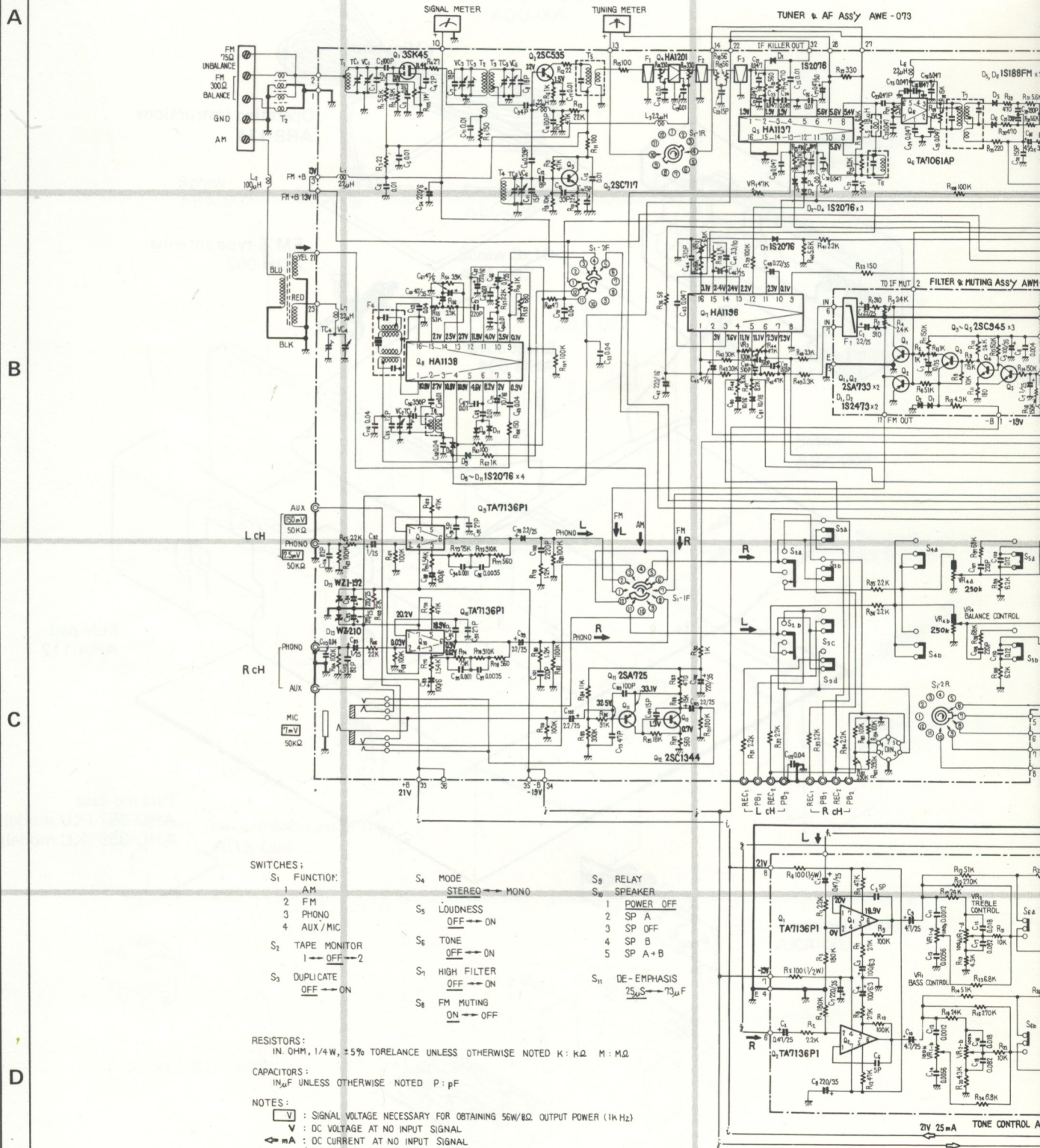


11.8 PACKING



12. SCHEMATIC DIAGRAMS. P.C. BOARD PATTERNS AND

12.1 SCHEMATIC DIAGRAMS





12.2 MISCELLANEOUS PARTS

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SD 388-R
Q2	Transistor	2SB 541-R
Q3	Transistor	2SD 388-R
Q4	Transistor	2SB 541-R

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 15,000 50V	ACH-057
C2	Electrolytic 15,000 50V	ACH-057
C3	Ceramic 0.01 150V (DC1.4kV)	ACG-003
C4	Ceramic 0.01 150V (DC1.4kV)	ACG-001

SWITCHES

Symbol	Description	Part No.
S1	Rotary switch	ASA-039

LAMPS

Symbol	Description	Part No.
PL1	Lamp assembly (8V, 0.3A)	AEL-060
PL2	Lamp assembly (8V, 0.3A)	AEL-060
PL3	Lamp assembly (8V, 0.3A)	AEL-060
PL4	Lamp with leads (8V, 50mA)	AEL-064
PL5	Lamp with leads (8V, 50mA)	AEL-068
PL6	Lamp with leads (8V, 50mA)	AEL-066
PL7	Lamp with leads (8V, 50mA)	AEL-067
PL8	Lamp with leads (8V, 50mA)	AEL-069
PL9	Lamp with leads (8V, 50mA)	AEL-069

FUSES

Symbol	Description	Part No.
FU1	Fuse 1.5A	AEK-104
FU2	Fuse 0.5A	AEK-107
FU3	Fuse 0.8A	AEK-111
FU4	Fuse 0.8A	AEK-111
FU5	Fuse 4A	AEK-100

COILS, TRANSFORMER

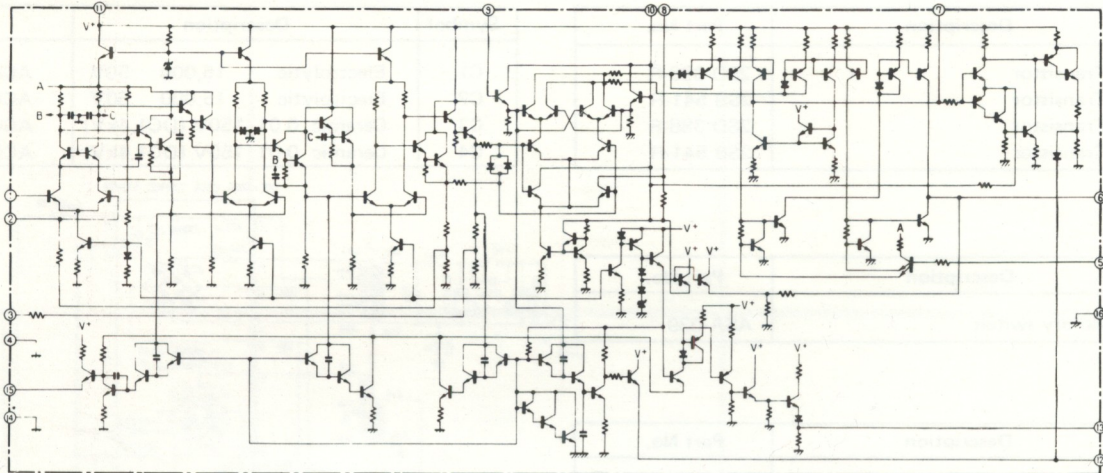
Symbol	Description	Part No.
T1	Power transformer (KU model) Power transformer (KC model)	ATT-264 ATT-301
T2	Ferrite balun	T22-025
L1	Ferrite bar antenna	AXB-004
L2	Chock coil	T24-030

RESISTOR

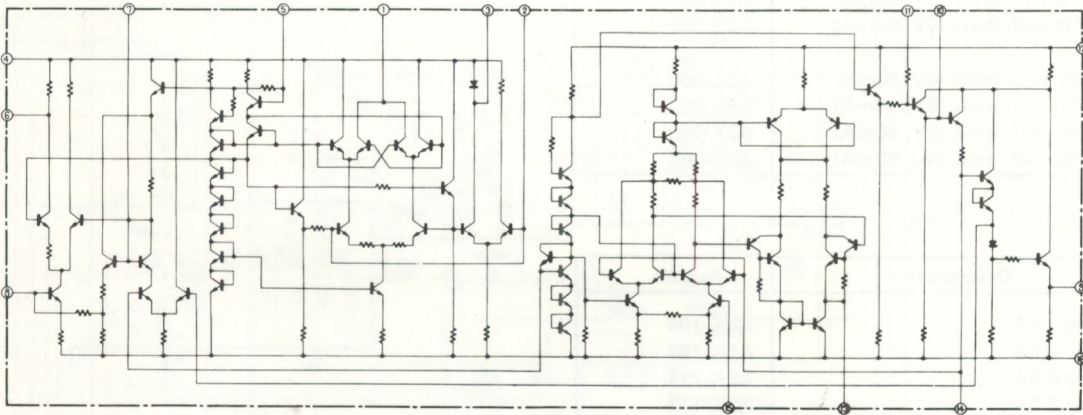
Symbol	Description	Part No.
R1	Carbon film 2.2M ½W	RD½PS 225J

12.3 INTERNAL CIRCUITRY OF INTEGRATED CIRCUITS

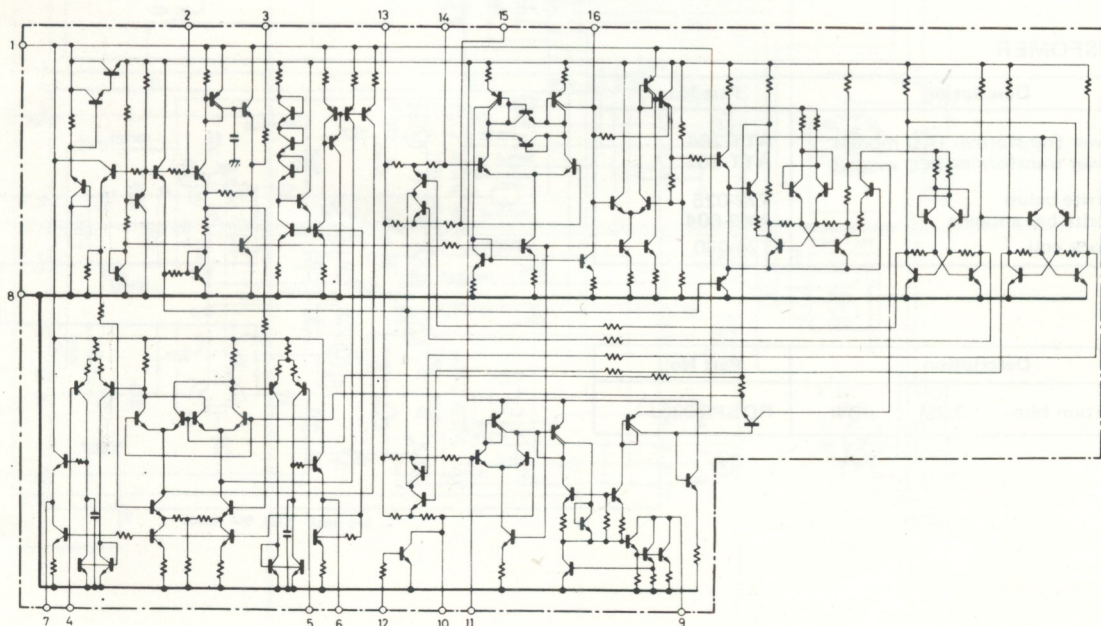
HA1137 (FM IF IC)



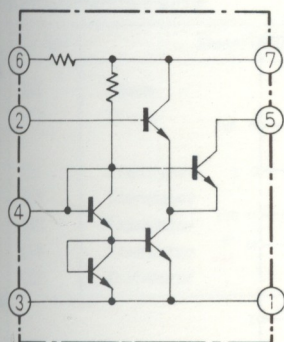
HA1138 (AM IC)



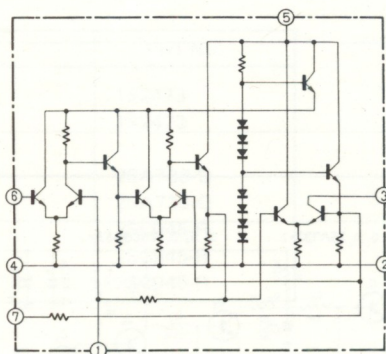
HA1196



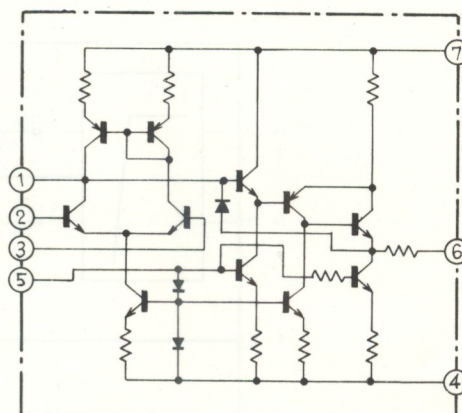
HA1201



TA 7061AP

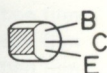


TA7136P1

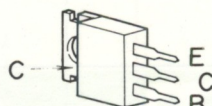


External Appearance of Transistors and ICs

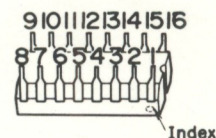
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2SC945A
2SC1438
2SC1647
2SC1649



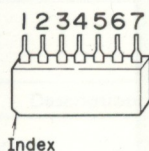
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2SD313



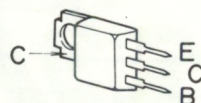
HA1137
HA1138
HA1196



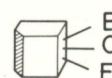
TA7061AP
TA7136P1



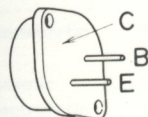
2SB527
2SD357



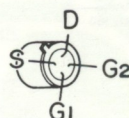
2SC461
2SC535
2SC1344



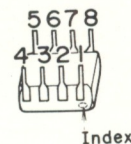
2SB541
2SD388



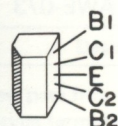
3SK45



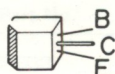
HA1201



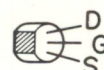
2SA798



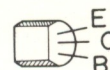
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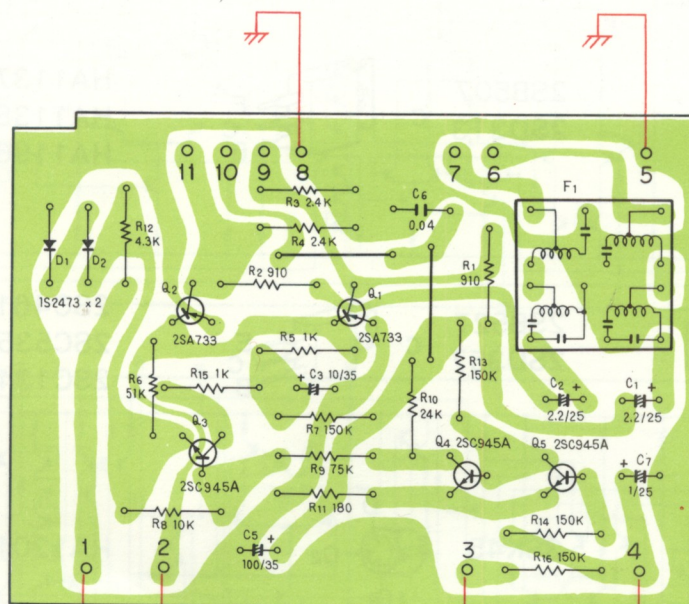
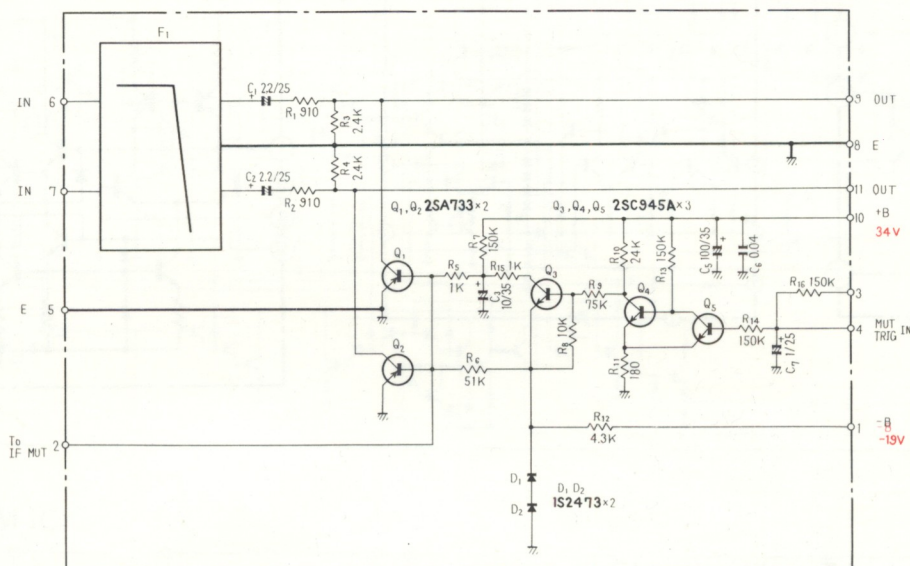
2SK30A



2SA725



12.4 FILTER & MUTING ASSEMBLY (AWM-094)



AWE-073 No.29

AWE-073 No.22 No.32

AWE-073 No.44

AWH-046 No.28 (-19V)

AWG-046 No.7 (-19V)

Parts List of Filters & Muting Assembly (AWM-094)

SEMICONDUCTORS

Symbol	Description	Part No.
D1	Diode	1S2473
D2	Diode	1S2473
Q1	Transistor	2SA733-Q
Q2	Transistor	2SA733-Q
Q3	Transistor	2SC945-R
Q4	Transistor	2SC945-R
Q5	Transistor	2SC945-R

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 910	RD¼PS 911J
R2	Carbon film 910	RD¼PS 911J
R3	Carbon film 2.4k	RD¼PS 242J
R4	Carbon film 2.4k	RD¼PS 242J
R5	Carbon film 1k	RD¼PS 102J
R6	Carbon film 51k	RD¼PS 513J
R7	Carbon film 150k	RD¼PS 154J
R8	Carbon film 10k	RD¼PS 103J
R9	Carbon film 75k	RD¼PS 753J
R10	Carbon film 24k	RD¼PS 243J
R11	Carbon film 180	RD¼PS 181J
R12	Carbon film 4.3k	RD¼PS 432J
R13	Carbon film 150k	RD¼PS 154J
R14	Carbon film 150k	RD¼PS 154J
R15	Carbon film 1k	RD¼PS 102J
R16	Carbon film 150k	RD¼PS 154J

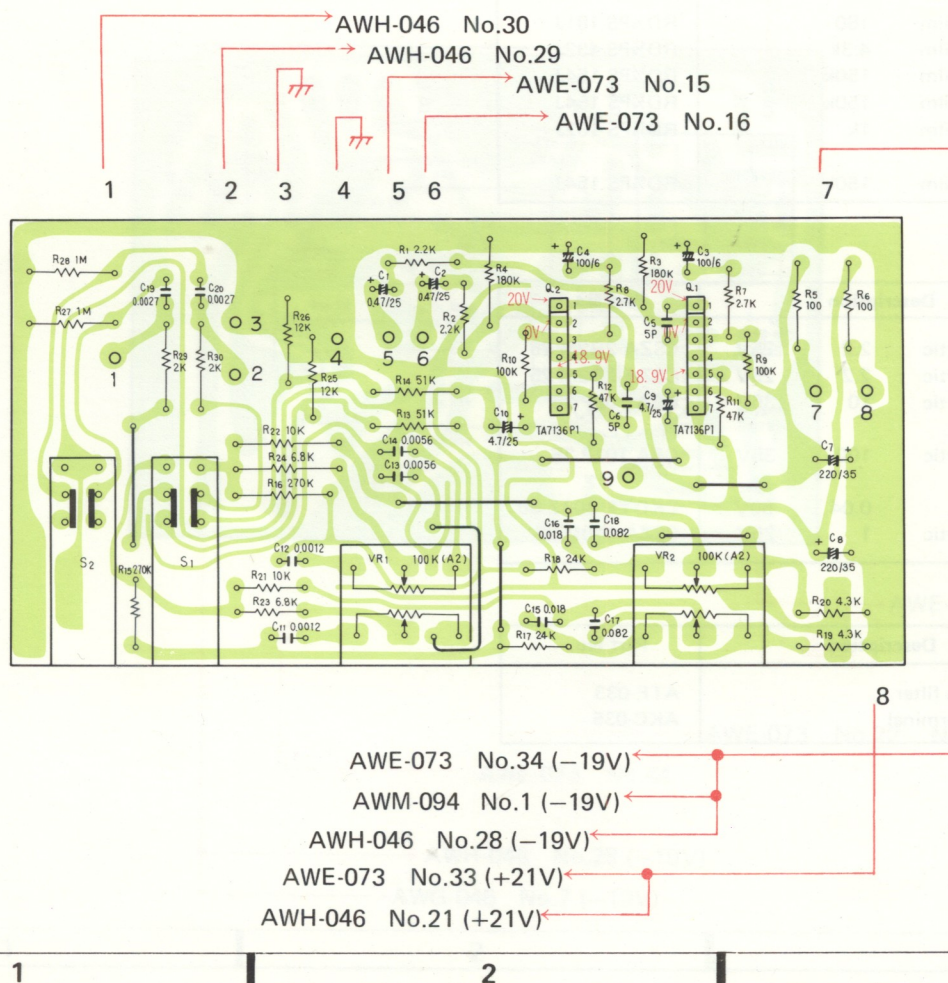
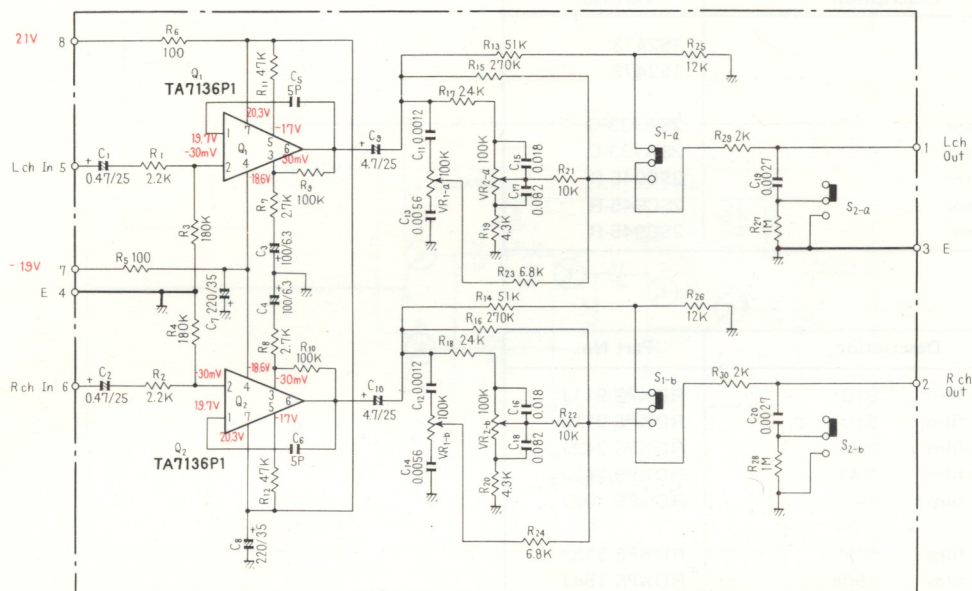
CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 2.2 25V	CSZA 2R2M 25
C2	Electrolytic 2.2 25V	CSZA 2R2M 25
C3	Electrolytic 10 35V	CEA 100P 35
C4
C5	Electrolytic 100 35V	CEA 101P 35
C6	Ceramic 0.04 50V	CKDYF 403Z 50
C7	Electrolytic 1 25V	CSZA 010M 25

OTHERS

Symbol	Description	Part No.
	Low pass filter	ATF-033
	L-type terminal	AKC-035

12.5 TONE CONTROL ASSEMBLY (AWG-046)



Parts List of Tone Control Assembly (AWG-046)
SEMICONDUCTORS

Symbol	Description	Part No.
Q1	IC	TA7136P1
Q2	IC	TA7136P1
VR1	Volume switch	
VR2	Variable resistor (BASS) 100k-A2	ACV-138
VR2	Variable resistor (TREBLE)100k-A2	ACV-138
SW1	Lever switch (S1-TONE)	ASK-090
SW2	Lever switch (S2-HIGH FILTER)	ASK-090

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 2.2k	RD4PM 222J
R2	Carbon film 2.2k	RD4PM 222J
R3	Carbon film 180k	RD4PM 184J
R4	Carbon film 180k	RD4PS 184J
R5	Carbon film 100	RD4PS 101J
R6	Carbon film 100	RD4PS 101J
R7	Carbon film 2.7k	RD4PM 272J
R8	Carbon film 2.7k	RD4PM 272J
R9	Carbon film 100k	RD4PM 104J
R10	Carbon film 100k	RD4PM 104J
R11	Carbon film 47k	RD4PM 473J
R12	Carbon film 47k	RD4PM 473J
R13	Carbon film 51k	RD4PS 513J
R14	Carbon film 51k	RD4PS 513J
R15	Carbon film 270k	RD4PM 274J
R16	Carbon film 270k	RD4PS 274J
R17	Carbon film 24k	RD4PM 243J
R18	Carbon film 24k	RD4PM 243J
R19	Carbon film 4.3k	RD4PM 432J
R20	Carbon film 4.3k	RD4PM 432J
R21	Carbon film 10k	RD4PM 103J
R22	Carbon film 10k	RD4PS 103J
R23	Carbon film 6.8k	RD4PM 682J
R24	Carbon film 6.8k	RD4PS 682J
R25	Carbon film 12k	RD4PS 123J
R26	Carbon film 12k	RD4PS 123J
R27	Carbon film 1M	RD4PS 105J
R28	Carbon film 1M	RD4PS 105J
R29	Carbon film 2k	RD4PS 202J
R30	Carbon film 2k	RD4PS 202J

CAPACITORS

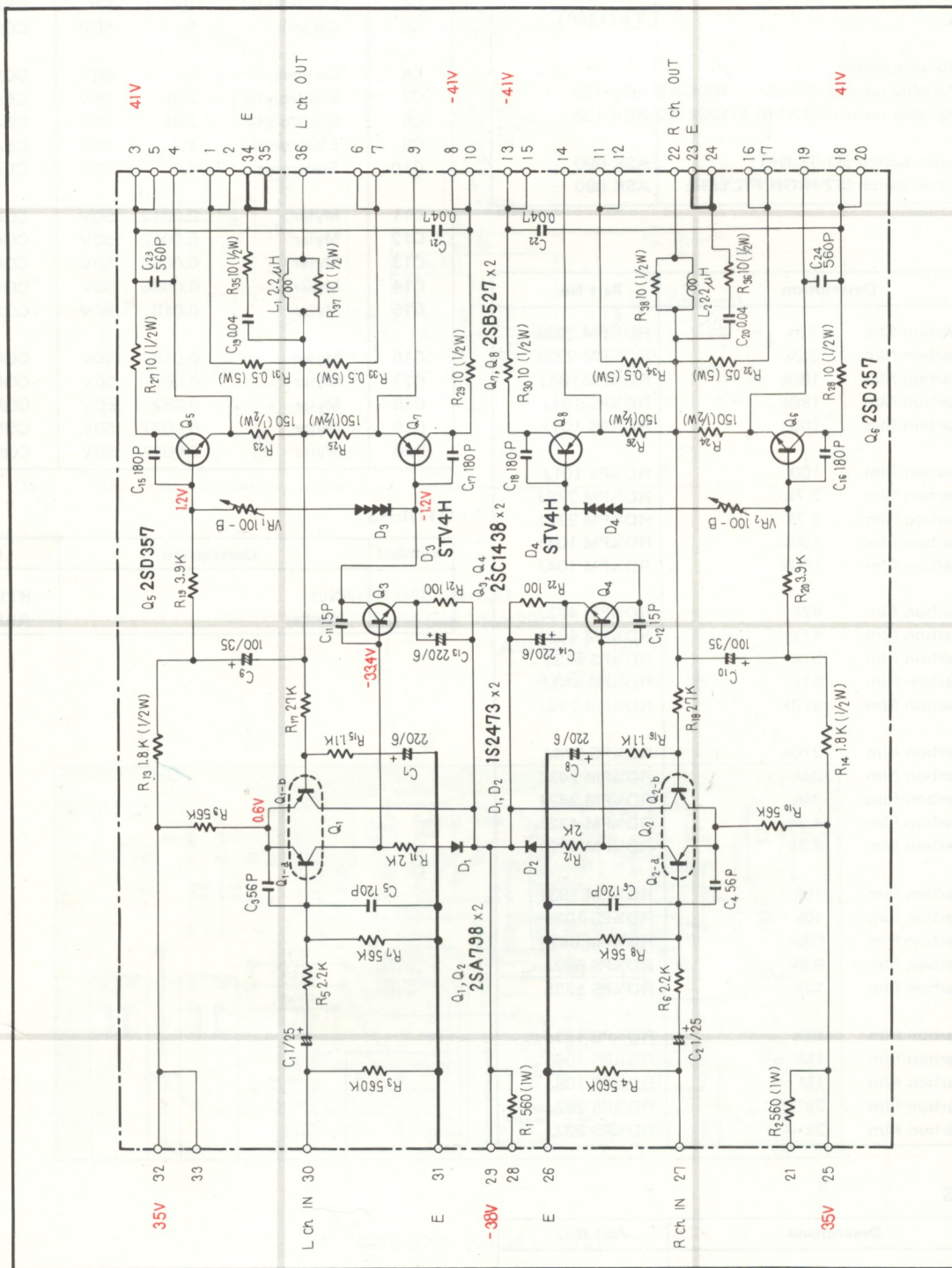
Symbol	Description	Part No.
C1	Electrolytic 0.47 25V	CSSA R47M 25
C2	Electrolytic 0.47 25V	CSSA R47M 25
C3	Electrolytic 100 6V	CEA 101P 6

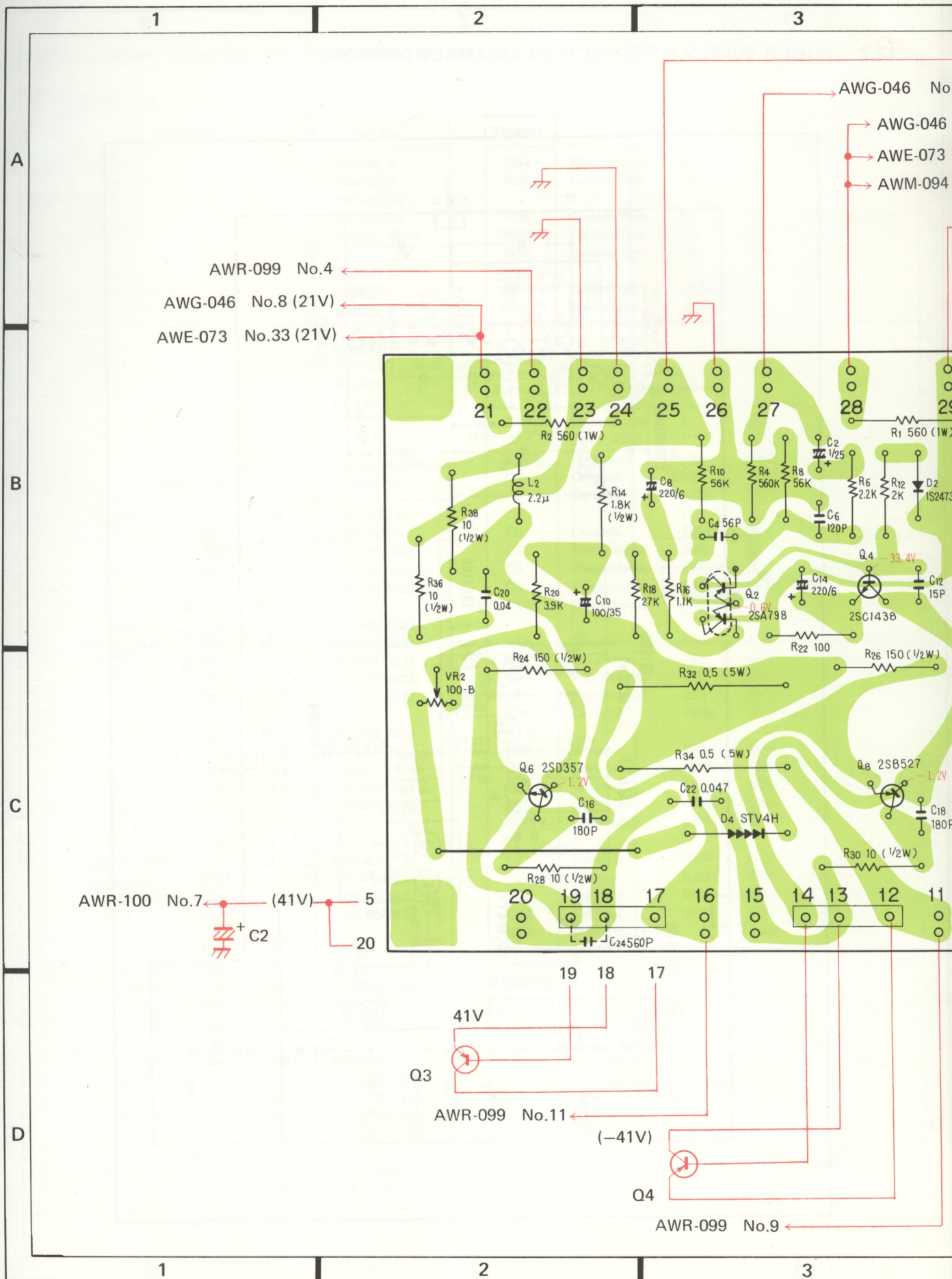
Symbol	Description	Part No.
C4	Electrolytic 100 6V	CEA 101P 6
C5	Ceramic 5p 50V	CCDSL 050D 50
C6	Ceramic 5p 50V	CCDSL 050D 50
C7	Electrolytic 220 35V	CEA 221P 35
C8	Electrolytic 220 35V	CEA 221P 35
C9	Electrolytic 4.7 25V	CEANL 4R7P 25
C10	Electrolytic 4.7 25V	CEANL 4R7P 25
C11	Mylar 0.0012 50V	CQMA 122J 50
C12	Mylar 0.0012 50V	CQMA 122J 50
C13	Mylar 0.0056 50V	CQMA 562J 50
C14	Mylar 0.0056 50V	CQMA 562J 50
C15	Mylar 0.018 50V	CQMA 183J 50
C16	Mylar 0.018 50V	CQMA 183J 50
C17	Mylar 0.082 50V	CQMA 823J 50
C18	Mylar 0.082 50V	CQMA 823J 50
C19	Mylar 0.0027 50V	CQMA 272J 50
C20	Mylar 0.0027 50V	CQMA 272J 50

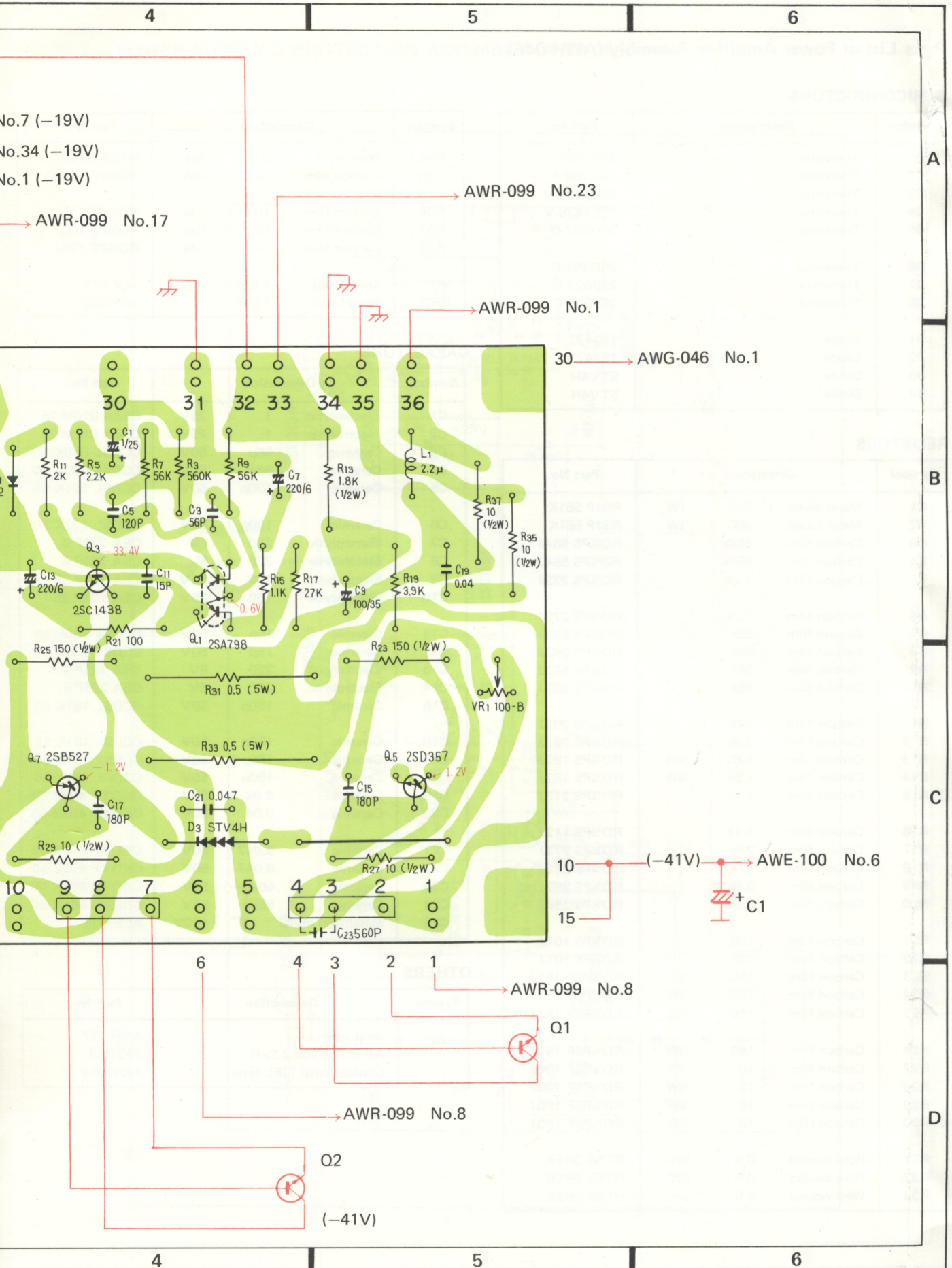
OTHERS

Symbol	Description	Part No.
	Nut	B71-004
	Washer	ABE-001

POWER AMPLIFIER ASSEMBLY (AWH-046)







Parts List of Power Amplifier Assembly (AWH-046)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SA798-F
Q2	Transistor	2SA798-F
Q3	Transistor	2SC1438-V
Q4	Transistor	2SC1438-V
Q5	Transistor	2SD357-C
Q6	Transistor	2SD357-C
Q7	Transistor	2SB527-C
Q8	Transistor	2SB527-C
D1	Diode	1S2473
D2	Diode	1S2473
D3	Diode	STV4H
D4	Diode	STV4H

RESISTORS

Symbol	Description	Part No.
R1	Metal oxide 560 1W	RS1P 561K
R2	Metal oxide 560 1W	RS1P 561K
R3	Carbon film 560k	RD½PS 564J
R4	Carbon film 560k	RD½PS 564J
R5	Carbon film 2.2k	RD½PS 222J
R6	Carbon film 2.2k	RD½PS 222J
R7	Carbon film 56k	RD½PS 563J
R8	Carbon film 56k	RD½PS 563J
R9	Carbon film 56k	RD½PS 563J
R10	Carbon film 56k	RD½PS 563J
R11	Carbon film 2.0k	RD½PS 202J
R12	Carbon film 2.0k	RD½PS 202J
R13	Carbon film 1.8k ½W	RD½PS 182J
R14	Carbon film 1.8k ½W	RD½PS 182J
R15	Carbon film 1.1k	RD½PS 112J
R16	Carbon film 1.1k	RD½PS 112J
R17	Carbon film 27k	RD½PS 273J
R18	Carbon film 27k	RD½PS 273J
R19	Carbon film 3.9k	RD½PS 392J
R20	Carbon film 3.9k	RD½PS 392J
R21	Carbon film 100	RD½PS 101J
R22	Carbon film 100	RD½PS 101J
R23	Carbon film 150 ½W	RD½PSF 151J
R24	Carbon film 150 ½W	RD½PSF 151J
R25	Carbon film 150 ½W	RD½PSF 151J
R26	Carbon film 150 ½W	RD½PSF 151J
R27	Carbon film 10 ½W	RD½PSF 100J
R28	Carbon film 10 ½W	RD½PSF 100J
R29	Carbon film 10 ½W	RD½PSF 100J
R30	Carbon film 10 ½W	RD½PSF 100J
R31	Wire wound 0.5 5W	RT5B 0R5K
R32	Wire wound 0.5 5W	RT5B 0R5K
R33	Wire wound 0.5 5W	RT5B 0R5K

Symbol	Description	Part No.
R34	Wire wound 0.5 5W	RT5B 0R5K
R35	Carbon film 10 ½W	RD½PSF 100J
R36	Carbon film 10 ½W	RD½PSF 100J
R37	Carbon film 10 ½W	RD½PS 100J
R38	Carbon film 10 ½W	RD½PS 100J
VR1	Semi-fixed 100-B	ACP-019
VR2	Semi-fixed 100-B	ACP-019

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 1 25V	CSZA 010M 25
C2	Electrolytic 1 25V	CSZA 010M 25
C3	Ceramic 56p 50V	CCDSL 560K 50
C4	Ceramic 56p 50V	CCDSL 560K 50
C5	Ceramic 120p 50V	CCDSL 121K 50
C6	Ceramic 120p 50V	CCDSL 121K 50
C7	Electrolytic 220 6V	CEA 221P 6
C8	Electrolytic 220 6V	CEA 221P 6
C9	Electrolytic 100 35V	CEA 101P 35
C10	Electrolytic 100 35V	CEA 101P 35
C11	Ceramic 15p 50V	CCDSL 150K 50
C12	Ceramic 15p 50V	CCDSL 150K 50
C13	Electrolytic 220 6V	CEA 221P 6
C14	Electrolytic 220 6V	CEA 221P 6
C15	Ceramic 180p 50V	CCDSL 181K 50
C16	Ceramic 180p 50V	CCDSL 181K 50
C17	Ceramic 180p 50V	CCDSL 181K 50
C18	Ceramic 180p 50V	CCDSL 181K 50
C19	Ceramic 0.04 50V	CKDYF 403Z 50
C20	Ceramic 0.04 50V	CKDYF 403Z 50
C21	Ceramic 0.047 50V	CKDYF 473Z 50
C22	Ceramic 0.047 50V	CKDYF 473Z 50
C23	Ceramic 560p 50V	CKDYB 561K 50
C24	Ceramic 560p 50V	CKDYB 561K 50
C25	Metallized mylar 1 100V	ACE-008

OTHERS

Symbol	Description	Part No.
	Heat sink	ANH-117
	AF chock coil 2.2μH	T63-009
	Contact strip (3PL-type)	AKM-018

D



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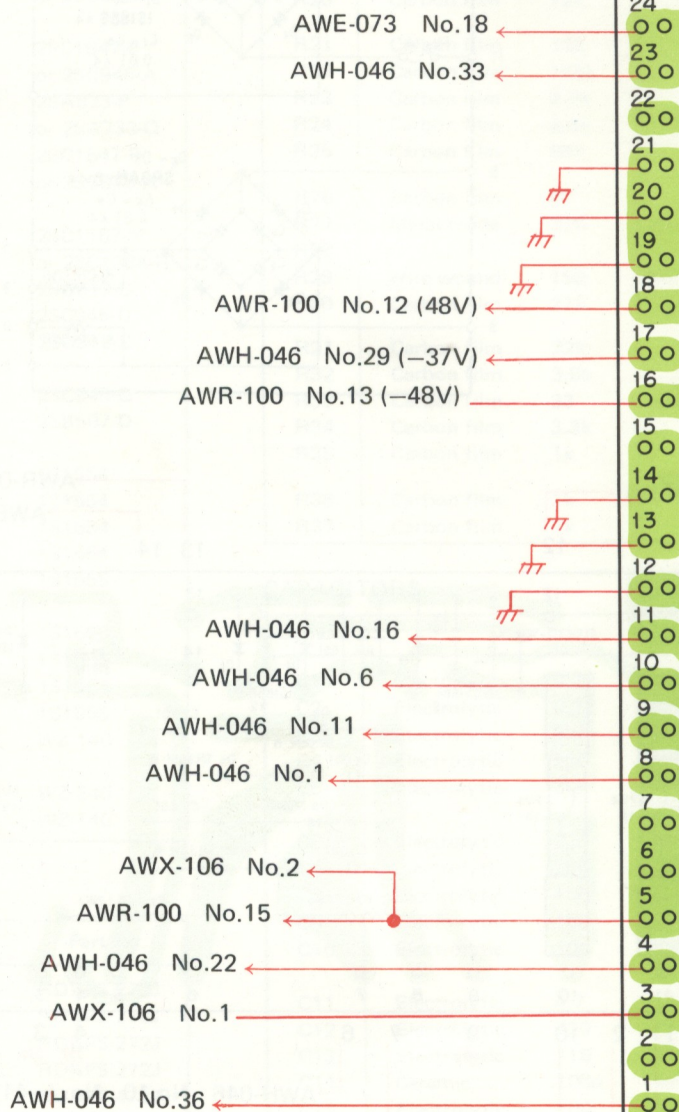
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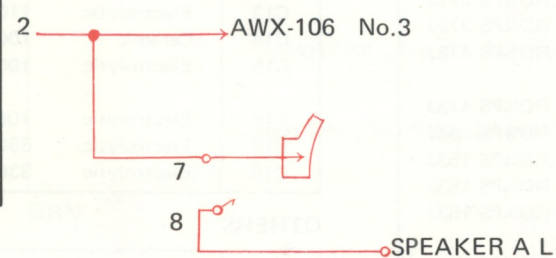
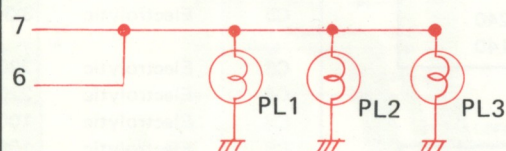
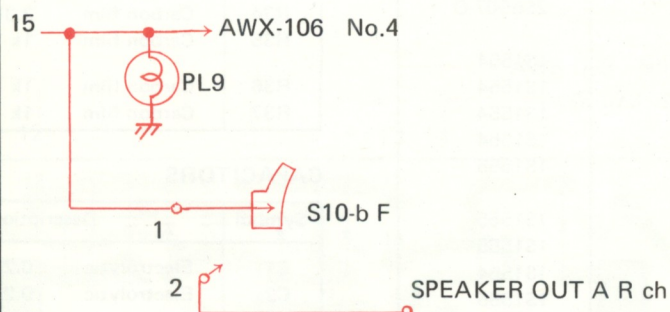
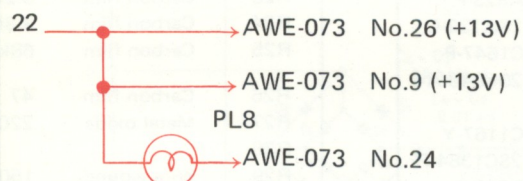
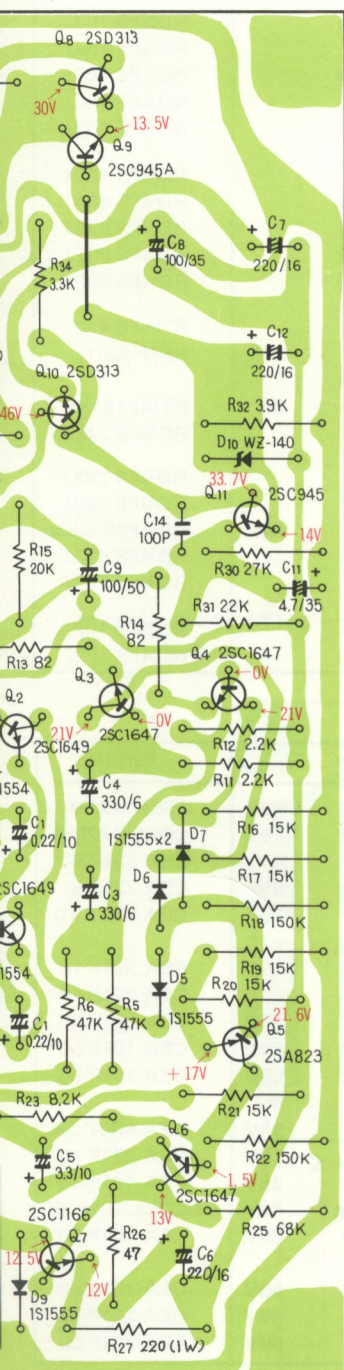
A

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Parts List of Power Supply & Protection Assembly (AWR-099)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SC1649-N or 2SC869-C
Q2	Transistor	2SC1649-N or 2SC869-C
Q3	Transistor	2SC1647-P or 2SC945-A
Q4	Transistor	2SC1647-P or 2SC945-A
Q5	Transistor	2SA823-P or 2SA733-Q
Q6	Transistor	2SC1647-P or 2SC945-A
Q7	Transistor	2SC1167-Y or 2SC1384-R
Q8	Transistor	2SD313-D
Q9	Transistor	2SC945-Q
Q10	Transistor	2SD313-D
Q11	Transistor	2SC945-Q
Q12	Transistor	2SB507-D
D1	Diode	1S1554
D2	Diode	1S1554
D3	Diode	1S1554
D4	Diode	1S1554
D5	Diode	1S1555
D6	Diode	1S1555
D7	Diode	1S1555
D8	Diode	1S1554
D9	Diode	1S1555
D10	Zener diode	WZ-140
D11	Zener diode	WZ-240
D12	Zener diode	WZ-140

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 2.7k	RD%PS 272J
R2	Carbon film 2.7k	RD%PS 272J
R3	Carbon film 2.7k	RD%PS 272J
R4	Carbon film 2.7k	RD%PS 272J
R5	Carbon film 47k	RD%PS 473J
R6	Carbon film 47k	RD%PS 473J
R7	Carbon film 15k	RD%PS 153J
R8	Carbon film 15k	RD%PS 153J
R9	Carbon film 15k	RD%PS 153J
R10	Carbon film 15k	RD%PS 153J
R11	Carbon film 2.2k	RD%PS 222J
R12	Carbon film 2.2k	RD%PS 222J
R13	Carbon film 82	RD%PS 820J

Symbol	Description	Part No.
R14	Carbon film 82	RD%PS 820J
R15	Carbon film 20k	RD%PS 203J
R16	Carbon film 15k	RD%PS 153J
R17	Carbon film 15k	RD%PS 153J
R18	Carbon film 150k	RD%PS 154J
R19	Carbon film 15k	RD%PS 153J
R20	Carbon film 15k	RD%PS 153J
R21	Carbon film 15k	RD%PS 153J
R22	Carbon film 150k	RD%PS 154J
R23	Carbon film 8.2k	RD%PS 822J
R24	Carbon film 3.3k	RD%PS 332J
R25	Carbon film 68k	RD%PS 683J
R26	Carbon film 47	RD%PS 470J
R27	Metal oxide 220 1W	RS1P 221K
R28		
R29	Wire wound 150 5W	RT5B 151K
R30	Carbon film 27k	RD%PS 273J
R31	Carbon film 22k	RD%PS 223J
R32	Carbon film 3.9k	RD%PS 392J
R33	Carbon film 33 1/2W	RD%PSF 330J
R34	Carbon film 3.3k	RD%PS 332J
R35	Carbon film 1k	RD%PS 102J
R36	Carbon film 1k	RD%PS 102J
R37	Carbon film 1k	RD%PS 102J

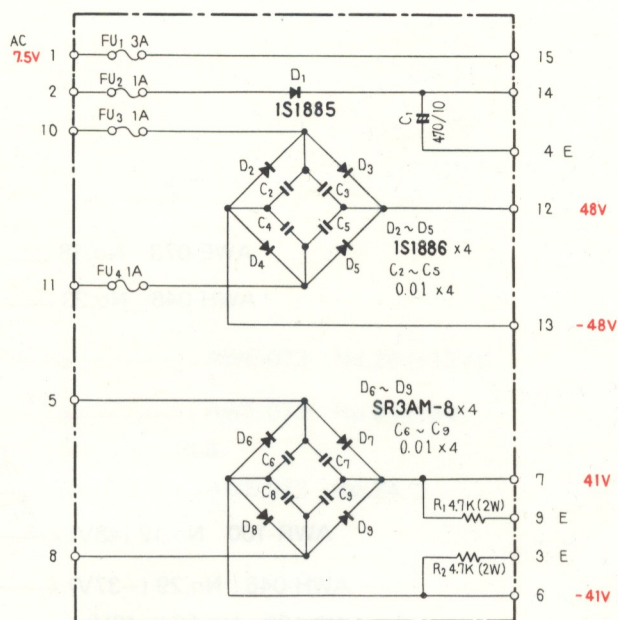
CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 0.22 10V	CSSA R22M 10
C2	Electrolytic 0.22 10V	CSSA R22M 10
C3	Electrolytic 330 6V	CEA 331P 6
C4	Electrolytic 330 6V	CEA 331P 6
C5	Electrolytic 3.3 10V	CEA 3R3P 10
C6	Electrolytic 220 16V	CEA 221P 16
C7	Electrolytic 220 16V	CEA 221P 16
C8	Electrolytic 100 35V	CEA 101P 35
C9	Electrolytic 100 50V	CEA 101P 50
C10	Electrolytic 100 50V	CEA 101P 50
C11	Electrolytic 4.7 35V	CEA 4R7P 35
C12	Electrolytic 220 16V	CEA 221P 16
C13	Electrolytic 110 35V	CEA 101P 35
C14	Ceramic 100p 50V	CCDSL 101K 50
C15	Electrolytic 100 50V	CEA 101P 50
C16	Electrolytic 100 50V	CEA 101P 50
C17	Electrolytic 330 50V	CEA 331P 50
C18	Electrolytic 330 50V	CEA 331P 50

OTHERS

Symbol	Description	Part No.
	Heat sink	ANH-117-0
	Heat sink	ANH-259-0
	Relay	ASR-018

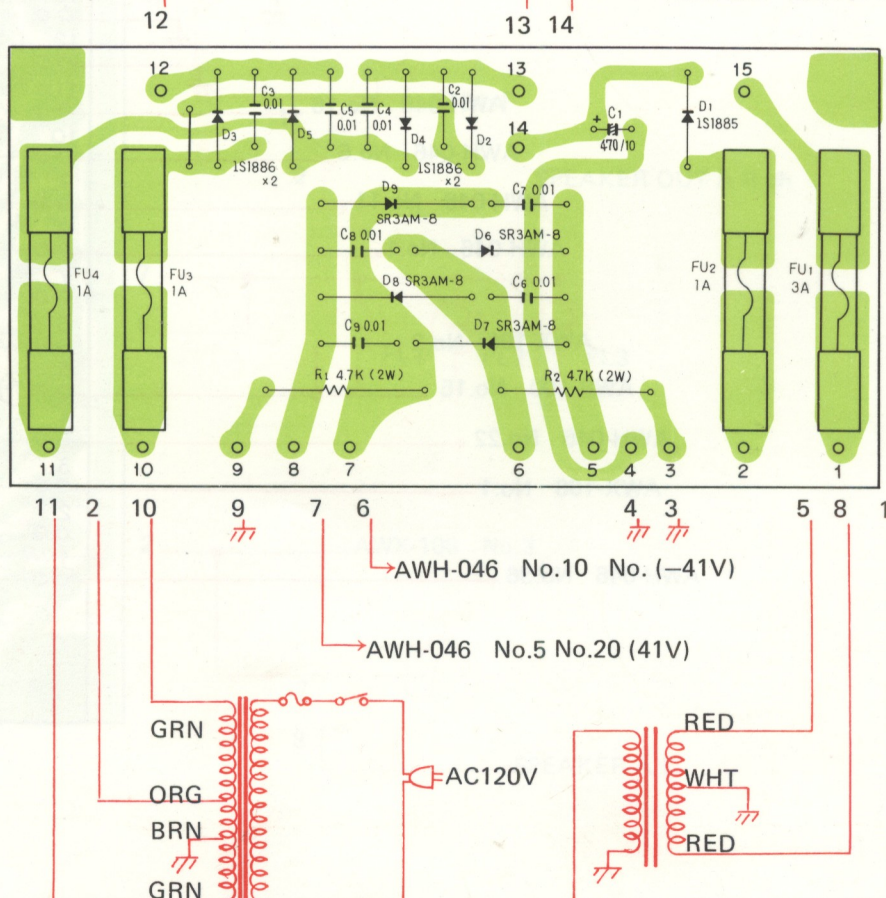
12.8 POWER SUPPLY ASSEMBLY (AWR-100)



AWR-099 No.18 (48V)

AWR-099 No.16 (-48V)

AWE-073 No.4 (6V)



Parts List of Power Supply Assembly (AWR-100)

SEMICONDUCTORS

Symbol	Description	Part No.
D1	Diode	1S1885
D2	Diode	1S1886
D3	Diode	1S1886
D4	Diode	1S1886
D5	Diode	1S1886
D6	Diode	SR3AM-8
D7	Diode	SR3AM-8
D8	Diode	SR3AM-8
D9	Diode	SR3AM-8

RESISTORS

Symbol	Description	Part No.
R1	Metal oxide 4.7k 2W	RS2P 472K
R2	Metal oxide 4.7k 2W	RS2P 472K

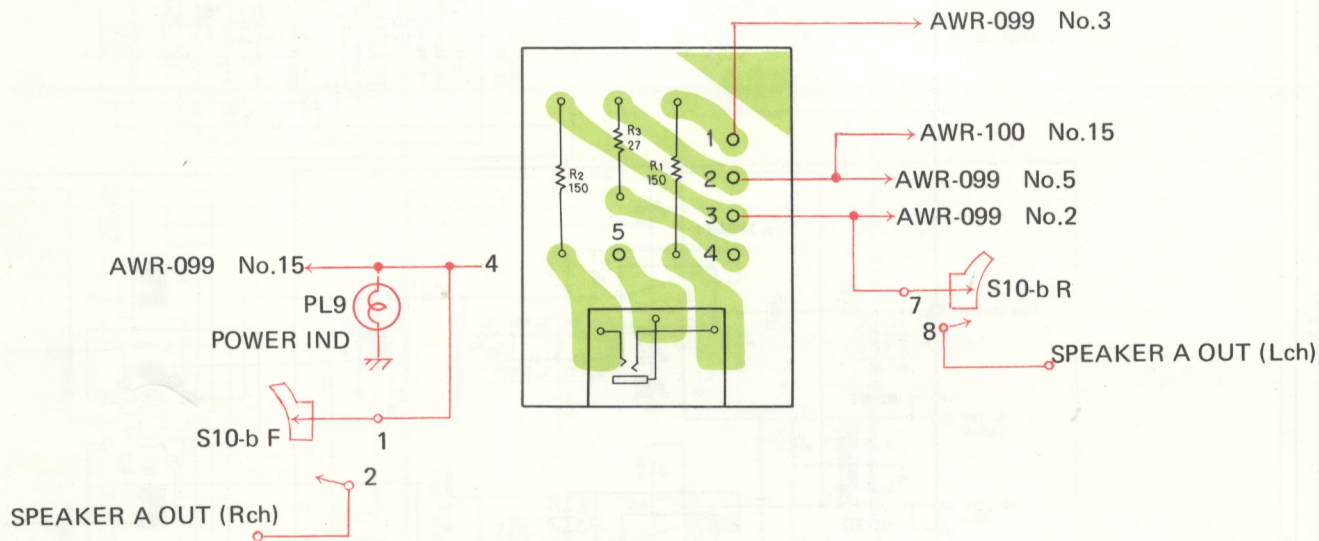
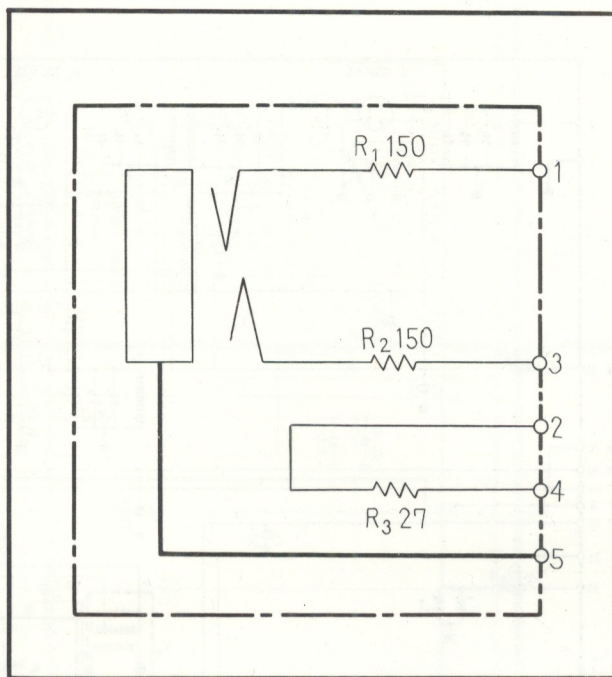
CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 470 10V	CEA 471P 10
C2	Electrolytic 0.01 250V	ACG-001
C3	Electrolytic 0.01 250V	ACG-001
C4	Electrolytic 0.01 250V	ACG-001
C5	Electrolytic 0.01 250V	ACG-001
C6	Electrolytic 0.01 250V	ACG-001
C7	Electrolytic 0.01 250V	ACG-001

OTHERS

Symbol	Description	Part No.
	Fuse clip	AKR-013
	Fuse clip	AKR-030

12.9 HEADPHONE JACK ASSEMBLY (AWX-106)

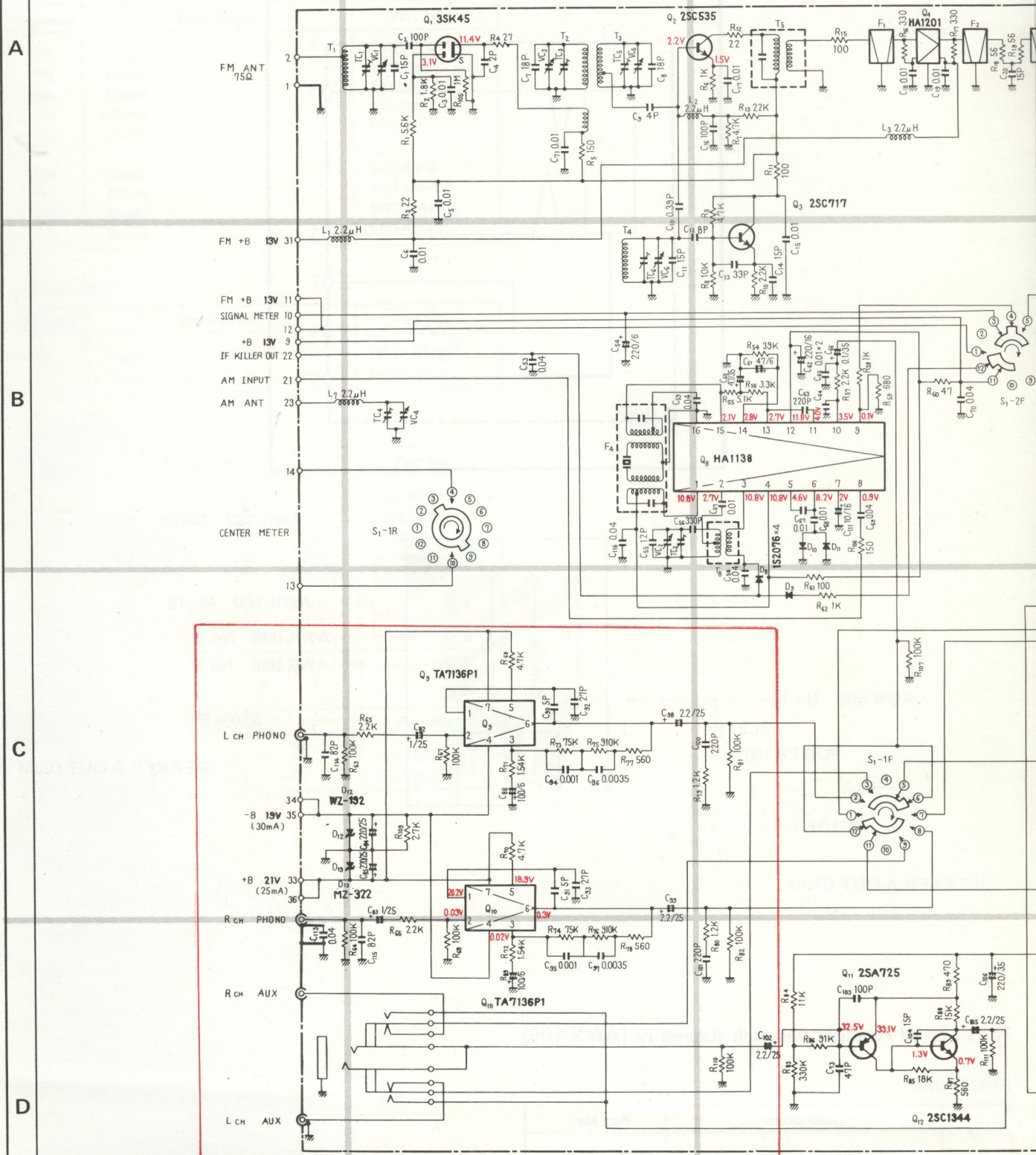


Parts List of Headphones Jack Assembly (AWX-106)

RESISTORS

Symbol	Description	Part No.
R1	Metal oxide 150 2W	RS 2P 151J
R2	Metal oxide 150 2W	RS 2P 151J
R3	Carbon film 27	RD4PS 270J

12.10 TUNER, AF, & CONTROL ASSEMBLY (AWE-073)



For units in which amplifier assembly (AWK-065) is used in place of IC (Q_9 , Q_{10} = TA7136P) indicated by red line, see Page 73.

A

B

C

D

1

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AWG-046 No.8

AWH-046 No.21

AWM-094 No.1 (-19V)

AWG-046 No.7 (-19V)

AWH-046 No.28 (-19V)

34 33

30 31 29

AWX-095 No.3 39

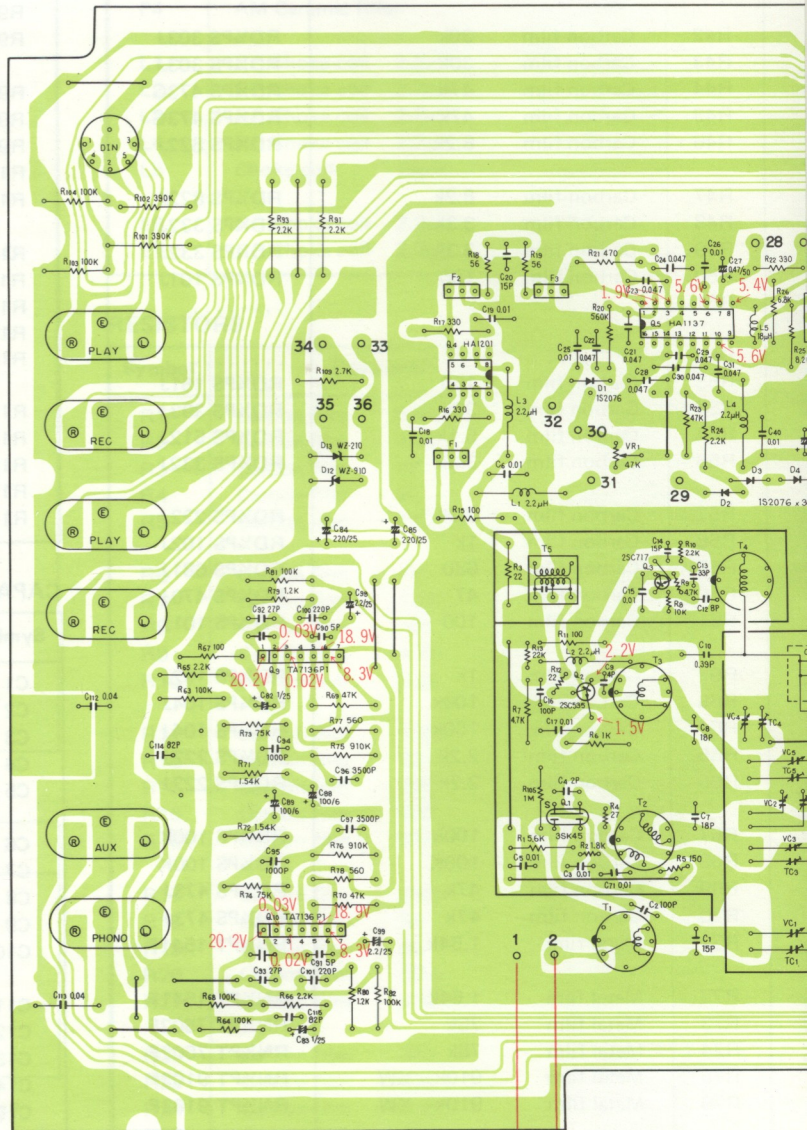
AWX-095 No.1 40

AWX-095 No.2 41

AWX-095 No.4 42

TP2 43

AWM-094 No.2 44





Parts List of Tuner, AF & Control Assembly (AWE-073)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	FET	3SK45-B
Q2	Transistor	2SC535-B
Q3	Transistor	2SC717
Q4	IC	HA1201
Q5	IC	HA1137
Q6	IC	TA7061AP
Q7	IC	HA1196
Q8	IC	HA1138
Q9	IC	TA7136 P1
Q10	IC	TA7136 P1
Q11	Transistor	2SA725-G
Q12	Transistor	2SC1344-D or 2SC1345-D
Q13	Transistor	2SA733-Q
D1	Diode	1S2076
D2	Diode	1S2076
D3	Diode	1S2076
D4	Diode	1S2076
D5	Diode	1S188FM-1
D6	Diode	1S188FM-1
D7	Diode	1S2076
D8	Diode	1S2076
D9	Diode	1S2076
D10	Diode	1S2076
D11	Diode	1S2076
D12	Zener Diode	WZ-192
D13	Zener Diode	WZ-210

SWITCHES

Symbol	Description	Part No.
S1	Rotary switch (FUNCTION)	ASD-049
S2	Lever switch (TAPE MONITOR)	ASK-102
S3	Lever switch (DUPLICATE)	ASK-092
S4	Lever switch (MODE)	ASK-090
S5	Lever switch (MODE)	ASK-090
S6	Push switch (FM MUTING)	ASG-097

TRANSFORMERS, COILS

Symbol	Description	Part No.
T1	FM antenna coil	ATC-021
T2	FM RF coil	ATC-015
T3	FM RF coil	ATC-016
T4	FM O, S, C coil	ATC-022
T5	FM IF transformer	ATE-026
T6	FM IF transformer	ATE-027
T7	FM IF transformer	ATE-013

Symbol	Description	Part No.
T8	AM O, S, C coil	ATB-013
F1	FM ceramic filter	ATF-013
F2	FM Ceramic filter	ATF-013
F3	FM Ceramic filter	ATF-013
F4	AM Ceramic filter	ATF-027
L1	RF Choke coil 2.2μH	T24-028
L2	RF Choke coil 2.2μH	T24-028
L3	RF Choke coil 2.2μH	T24-028
L4	RF Choke coil 2.2μH	T24-028
L5	Choke coil 18μH	ATH-007
L6	RF Choke coil 2.2μH	T24-028
L7	RF Choke coil 2.2μH	T24-028

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 5.6k	RD¼PS 562J
R2	Carbon film 1.8k	RD¼VS 182J
R3	Carbon film 22	RD¼PS 220J
R4	Carbon film 27	RD¼VS 270J
R5	Carbon film 150	RD¼VS 151J
R6	Carbon film 1k	RD¼PS 102J
R7	Carbon film 4.7k	RD¼PS 472J
R8	Carbon film 10k	RD¼VS 103J
R9	Carbon film 4.7k	RD¼VS 472J
R10	Carbon film 2.2k	RD¼VS 222J
R11	Carbon film 100	RD¼PS 101J
R12	Carbon film 22	RD¼VS 220J
R13	Carbon film 22k	RD¼VS 223J
R15	Carbon film 100	RD¼PS 101J
R16	Carbon film 330	RD¼PS 331J
R17	Carbon film 330	RD¼PS 331J
R18	Carbon film 56	RD¼PM 560J
R19	Carbon film 56	RD¼PM 560J
R20	Carbon film 560k	RD¼PS 564J
R21	Carbon film 470	RD¼PS 471J
R22	Carbon film 330	RD¼PM 331J
R23	Carbon film 47k	RD¼PS 473J
R24	Carbon film 2.2k	RD¼PS 222J
R25	Carbon film 8.2k	RD¼PS 822J
R26	Carbon film 6.8k	RD¼PS 682J
R27	Carbon film 3.3k	RD¼PS 332J
R28	Carbon film 15k	RD¼PS 153J
R29	Carbon film 470	RD¼PM 471J
R30	Carbon film 470	RD¼PM 471J
R31	Carbon film 5.6k	RD¼PM 562J
R32	Carbon film 5.6k	RD¼PM 562J
R33	Carbon film 220	RD¼PS 221J

Symbol	Description		Part No.
R34	Carbon film	3.3k	RD¼PS 332J
R35	Carbon film	56k	RD¼PS 563J
R36	Carbon film	56	RD¼PS 560J
R37	Carbon film	16k	RD¼PS 163J
R38	Carbon film	1k	RD¼PS 102J
R39	Carbon film	100k	RD¼PS 104J
R40	Carbon film	5.6k	RD¼PS 562J
R41	Carbon film	2.2k	RD¼PS 222J
R42	Carbon film	30k	RD¼PS 303J
R43	Carbon film	30k	RD¼PS 303J
R44	Carbon film	47k	RD¼PS 473G
R45	Carbon film	47k	RD¼PS 473G
R46	Carbon film	8.2k	RD¼PS 822J
R47	Carbon film	8.2k	RD¼PS 822J
R48	Carbon film	3.3k	RD¼PS 332J
R49	Carbon film	3.3k	RD¼PS 332J
R50	Carbon film	100	RD¼PS 101J
R51
R52
R53	Carbon film	150	RD¼PS 151J
R54	Carbon film	39k	RD¼PS 393J
R55	Carbon film	5.1k	RD¼PS 512J
R56	Carbon film	3.3k	RD¼PS 332J
R57	Carbon film	2.2k	RD¼PS 222J
R58	Carbon film	1k	RD¼PS 102J
R59	Carbon film	680	RD¼PS 681J
R60	Carbon film	47	RD¼PS 470J
R61	Carbon film	100	RD¼PS 101J
R62	Carbon film	1k	RD¼PS 102J
R63	Carbon film	100k	RD¼PS 104J
R64	Carbon film	100k	RD¼PS 104J
R65	Carbon film	2.2k	RD¼PS 222J
R66	Carbon film	2.2k	RD¼PS 222J
R67	Carbon film	100k	RD¼PS 100K
R68	Carbon film	100K	RD¼PS 100K
R69	Carbon film	47k	RD¼PS 473J
R70	Carbon film	47k	RD¼PS 473J
R71	Metal film	1.54k	RN¼PT 1541F
R72	Metal film	1.54k	RN¼PT 1541F
R73	Metal film	75k	RN¼PT 7502F
R74	Metal film	75k	RN¼PT 7502F
R75	Metal film	910k ½W	RN½PT 9103F
R76	Metal film	910k ½W	RN½PT 9103F
R77	Carbon film	560	RD¼PS 561J
R78	Carbon film	560	RD¼PS 561J
R79	Carbon film	1.2k	RD¼PS 122J
R80	Carbon film	1.2k	RD¼PS 122J
R81	Carbon film	100k	RD¼PS 104J
R82	Carbon film	100k	RD¼PS 104J
R83	Carbon film	330k	RD¼PS 334J
R84	Carbon film	11k	RD¼PS 113J
R85	Carbon film	18k	RD¼PM 183J
R86	Carbon film	91k	RD¼PS 913J

Symbol	Description		Part No.
R87	Carbon film	560	RD¼PS 561J
R88	Carbon film	15k	RD¼PM 153J
R89	Carbon film	470	RD¼PS 471J
R90	Carbon film	1k	RD¼PS 102J
R91	Carbon film	2.2k	RD¼PS 222J
R92	Carbon film	2.2k	RD¼PS 222J
R93	Carbon film	2.2k	RD¼PS 222J
R94	Carbon film	2.2k	RD¼PS 222J
R95	Carbon film	2.2k	RD¼PS 222J
R96	Carbon film	2.2k	RD¼PS 222J
R97	Carbon film	68k	RD¼PS 683J
R98	Carbon film	68k	RD¼PS 683J
R99	Carbon film	6.2k	RD¼PS 622J
R100	Carbon film	6.2k	RD¼PS 622J
R101	Carbon film	390k	RD¼PS 394J
R102	Carbon film	390k	RD¼PS 394J
R103	Carbon film	100k	RD¼PS 104J
R104	Carbon film	100k	RD¼PS 104J
R105	Carbon film	1M	RD¼PS 105J
R106	Carbon film	150	RD¼PS 151J
R107	Carbon film	100k	RD¼PS 104J
R108	Carbon film	100k	RD¼PM 104J
R109	Carbon film	2.7k	RD¼PS 272J
R110	Carbon film	100k	RD¼PS 104J
R111

CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	15p	50V	CCDSH 150K 50
C2	Ceramic	100p	50V	CCDSL 101K 50
C3	Ceramic	0.01	50V	CKDYF 103Z 50
C4	Ceramic	2p	50V	CCDSL 020C 50
C5	Ceramic	0.01	50V	CKDYF 103Z 50
C6	Ceramic	0.01	50V	CKDYF 103Z 50
C7	Ceramic	18p	50V	CCDSH 180K 50
C8	Ceramic	18p	50V	CCDSH 180K 50
C9	Ceramic	4p	50V	CCDSL 040D 50
C10	Ceramic	0.39p	500V	CGB R39K 500
C11	Ceramic	15p	50V	CCDRH 150K 50
C12	Ceramic	8p	50V	CCDCH 080F 50
C13	Ceramic	33p	50V	CCDCH 330K 50
C14	Ceramic	15p	50V	CCDCH 150K 50
C15	Ceramic	0.01	50V	CKDYB 103K 50
C16	Ceramic	100p	50V	CCDSL 101K 50
C17	Ceramic	0.01	50V	CKDYF 103Z 50
C18	Ceramic	0.01	50V	CKDYF 103Z 50
C19	Ceramic	0.01	50V	CKDYF 103Z 50
C20	Ceramic	15p	50V	CCDSL 150K 50
C21	Ceramic	0.047	25V	CKDBC 473Z 25
C22	Ceramic	0.047	25V	CKDBC 473Z 25
C23	Ceramic	0.047	25V	CKDBC 473Z 25
C24	Ceramic	0.047	25V	CKDBC 473Z 25
C25	Ceramic	0.01	50V	CKDYF 103Z 50

Symbol	Description			Part No.
C26	Ceramic	0.01	50V	CKDYF 103Z 50
C27	Electrolytic	0.47	50V	CEA R47P 50
C28	Ceramic	0.047	25V	CKDBC 473Z 25
C29	Ceramic	0.047	25V	CKDBC 473Z 25
C30	Ceramic	0.047	25V	CKDBC 473Z 25
C31	Ceramic	0.047	25V	CKDBC 473Z 25
C32	Ceramic	0.047	25V	CKDBC 473Z 25
C33	Ceramic	0.47p	500V	CGB R47K 500
C34	Ceramic	0.047	25V	CKDBC 473Z 25
C35	Ceramic	0.047	25V	CKDBC 473Z 25
C36	Ceramic	0.047	25V	CKDBC 473Z 25
C37	Ceramic	390p	50V	CKDYB 391K 50
C38	Ceramic	390p	50V	CKDYB 391K 50
C39	Ceramic	150p	50V	CCDSL 151K 50
C40	Ceramic	0.01	50V	CKDYF 103Z 50
C41	Electrolytic	100	16V	CEA 101P 16
C42	Electrolytic	220	16V	CEA 221P 16
C43	Mylar	0.047	50V	CQMA 473K 50
C44	Polystyrene	510p	50V	CQSH 511J 50
C45	Electrolytic	4.7	16V	CSZA 4R7M 16
C46	Electrolytic	1	25V	CSZA 010M 25
C47	Electrolytic	3.3	10V	CSZA 3R3M 10
C48	Electrolytic	0.22	35V	CSZA R22M 35
C49	Polystyrene	510p	50V	CQSA 511J 50
C50	Polystyrene	510p	50V	CQSA 511J 50
C51	Mylar	0.0047	50V	CQMA 472J 50
C52	Mylar	0.0047	50V	CQMA 472J 50
C53	Ceramic	0.04	50V	CKDYF 403Z 50
C54	Electrolytic	220	6V	CEA 221P 6
C55	Ceramic	12p	50V	CCDXL 120K 50
C56	Polystyrene	330p	50V	CQSA 331J 50
C57	Ceramic	0.01	50V	CKDYF 103Z 50
C58	Ceramic	0.04	50V	CKDYF 403Z 50
C59	Ceramic	0.04	50V	CKDYF 403Z 50
C60	Electrolytic	4.7	35V	CEA 4R7P 35
C61	Electrolytic	47	6V	CEA 470P 6
C62	Electrolytic	220	16V	CEA 221P 16
C63	Ceramic	220p	50V	CCDSL 221K 50
C64	Ceramic	0.01	50V	CKDYF 103Z 50
C65	Ceramic	0.01	50V	CKDYF 103Z 50
C66	Electrolytic	0.1	35V	CSZA 0R1M 35
C67	Ceramic	0.01	50V	CKDYF 103Z 50
C68	Ceramic	0.01	50V	CKDYF 103Z 50
C69	Ceramic	0.04	50V	CKDYF 403Z 50
C70	Ceramic	0.04	50V	CKDYF 403Z 50
C71	Ceramic	0.01	50V	CKDYF 103Z 50
C72	Ceramic	150p	50V	CCDSL 151K 50
C73	Ceramic	47p	50V	CCDSL 470K 50
C74	Ceramic	0.04	50V	CKDYF 403Z 50
C75	Ceramic	0.047	25V	CKDBC 473Z 25
C76	Ceramic	0.047	25V	CKDBC 473Z 25
C80	Electrolytic	10	16V	CEA 100P 16

Symbol	Description			Part No.
C81	Electrolytic	10	16V	CEA 100P 16
C82	Electrolytic	1	25V	CSZA 010M 25
C83	Electrolytic	1	25V	CSZA 010M 25
C84	Electrolytic	220	25V	CEA 221P 25
C85	Electrolytic	220	25V	CEA 221P 25
C86	Electrolytic	4.7	16V	CEANL 4R7M16NF
C88	Electrolytic	100	6V	CEA 101P 6
C89	Electrolytic	100	6V	CEA 101P 6
C90	Ceramic	5p	50V	CCDSL 050D 50
C91	Ceramic	5p	50V	CCDSL 050D 50
C92	Ceramic	27p	50V	CCDSL 270K 50
C93	Ceramic	27p	50V	CCDSL 270K 50
C94	Polystyrene	1000p	50V	CQSA 102G 50
C95	Polystyrene	1000P	50V	CQSA 102G 50
C96	Polystyrene	3500p	50V	CQSA 352G 50
C97	Polystyrene	3500p	50V	CQSA 352G 50
C98	Electrolytic	2.2	25V	CSZA 2R2M 25
C99	Electrolytic	2.2	25V	CSZA 2R2M 25
C100	Ceramic	220p	50V	CCDSL 221K 50
C101	Ceramic	220p	50V	CCDSL 221K 50
C102	Electrolytic	2.2	25V	CSZA 2R2M 25
C103	Ceramic	100p	50V	CCDSL 101K 50
C104	Ceramic	15p	50V	CCDSL 150K 50
C105	Electrolytic	2.2	25V	CSZA 2R2M 25
C106	Electrolytic	220	35V	CEA 221P 35
C107	Ceramic	220p	50V	CCDSL 221K 50
C108	Ceramic	220p	50V	CCDSL 221K 50
C109	Mylar	0.12	50V	CQMA 124K 50
C110	Mylar	0.12	50V	CQMA 124K 50
C111	Electrolytic	10	16V	CEA 100P 16
C112	Ceramic	0.04	50V	CKDYF 403Z 50
C113	Ceramic	0.04	50V	CKDYF 403Z 50
C114	Ceramic	82p	50V	CCDSL 820K 50
C115	Ceramic	82p	50V	CCDSL 820K 50
C116	Ceramic	0.04	50V	CKDYF 403Z 50
VC1	Tuning capacitor			ACK-015
TC6	Ceramic trimmer			ACM-006

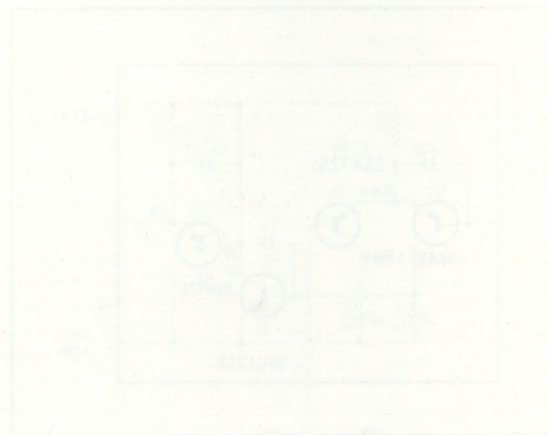
VARIABLE RESISTORS, OTHERS

Symbol	Description		Part No.
VR1	Semi-fixed	47k-B	C92-048
VR2	Semi-fixed	4.7k-B	ACP-055
VR3	Semi-fixed	100k-B	C92-047
VR4	Variable resistor (BALANCE)		ACV-135
VR5	Variable resistor (VOLUME)		ACV-179

OTHERS

	Terminal	(TAPE 1)	AKB-027
		(TAPE 2)	AKB-027
		(INPUT)	AKB-027
	Connector socket	(REC/PLAY)	AKP-011
	Phone jack	(MIC)	AKN-011

Symbol	Description	Part No.
	Nut	B71-004
	Washer	ABE-001
	Screw	ABA-121



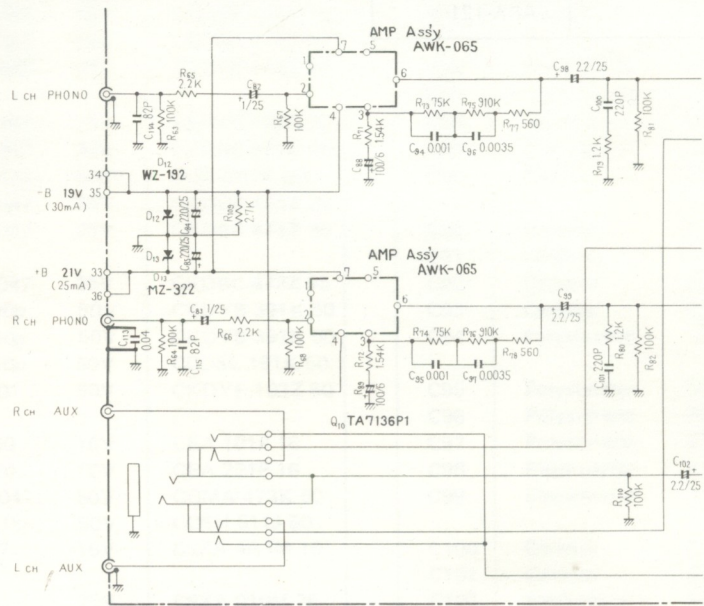
Symbol	Description	Part No.
R1	Resistor 10K	RES-10K
R2	Resistor 10K	RES-10K
R3	Resistor 10K	RES-10K
R4	Resistor 10K	RES-10K
R5	Resistor 10K	RES-10K
R6	Resistor 10K	RES-10K
R7	Resistor 10K	RES-10K
R8	Resistor 10K	RES-10K
R9	Resistor 10K	RES-10K
R10	Resistor 10K	RES-10K

Symbol	Description	Part No.
C1	Capacitor 100pF	CAP-100P
C2	Capacitor 100pF	CAP-100P
C3	Capacitor 100pF	CAP-100P
C4	Capacitor 100pF	CAP-100P
C5	Capacitor 100pF	CAP-100P
C6	Capacitor 100pF	CAP-100P
C7	Capacitor 100pF	CAP-100P
C8	Capacitor 100pF	CAP-100P
C9	Capacitor 100pF	CAP-100P
C10	Capacitor 100pF	CAP-100P

Symbol	Description	Part No.
Q1	Transistor 2N3055	TRN-2N3055
Q2	Transistor 2N3055	TRN-2N3055
Q3	Transistor 2N3055	TRN-2N3055
Q4	Transistor 2N3055	TRN-2N3055
Q5	Transistor 2N3055	TRN-2N3055
Q6	Transistor 2N3055	TRN-2N3055
Q7	Transistor 2N3055	TRN-2N3055
Q8	Transistor 2N3055	TRN-2N3055
Q9	Transistor 2N3055	TRN-2N3055
Q10	Transistor 2N3055	TRN-2N3055

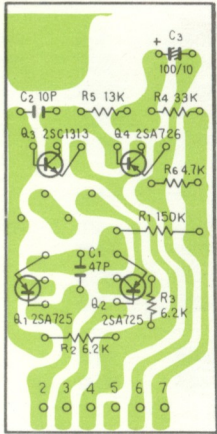
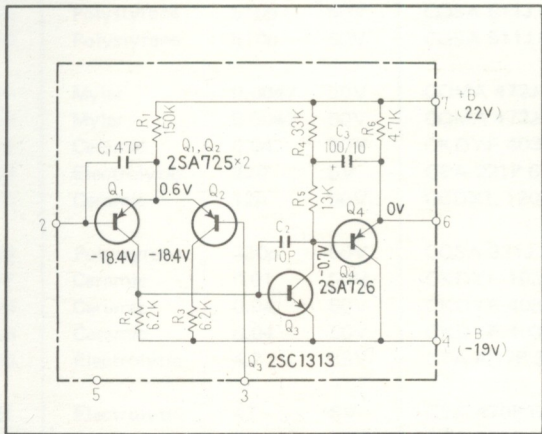
12.11 AMPLIFIER ASSEMBLY (AWK-065)

Tuner, AF & Control assembly (AWE-073)



AWK-065 circuit diagram

AWK-065 PCB



Parts List of Amplifier Assembly (AWK-065)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SA725-G (2SA640-E)
Q2	Transistor	2SA725-G (2SA640-E)
Q3	Transistor	2SC1313-G
Q4	Transistor	2SA726-G ₂ (2SA640-E)

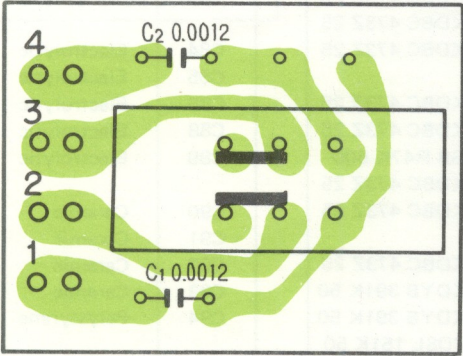
RESISTORS

Symbol	Description	Part No.
R1	Carbon film 150k	RD4VS 154J NL
R2	Carbon film 6.2k	RD4VS 622J
R3	Carbon film 6.2k	RD4VS 622J
R4	Carbon film 33k	RD4VS 333J
R5	Carbon film 13k	RD4VS 133J
R6	Carbon film 4.7k	RD4VS 472J

CAPACITORS

Symbol	Description	Part No.
C1	Ceramic 47p 50V	CCDSL 470K 50
C2	Ceramic 10p 50V	CCDSL 100K 50
C3	Electrolytic 100 10V	CEA 101P 10

12.12 DE-EMPHASIS SWITCH ASSEMBLY (AWX-095)



Parts List of De-emphasis Switch Assembly (AWX-095)

Symbol	Description	Part No.
	Slide switch (DE-EMPHASIS)	ASH-015
C1	Mylar capacitor 0.0012 50V	CQMA 122J 50
C2	Mylar capacitor 0.0012 50V	CQMA 122J 50

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U.S. PIONEER ELECTRONICS CORPORATION

75 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.

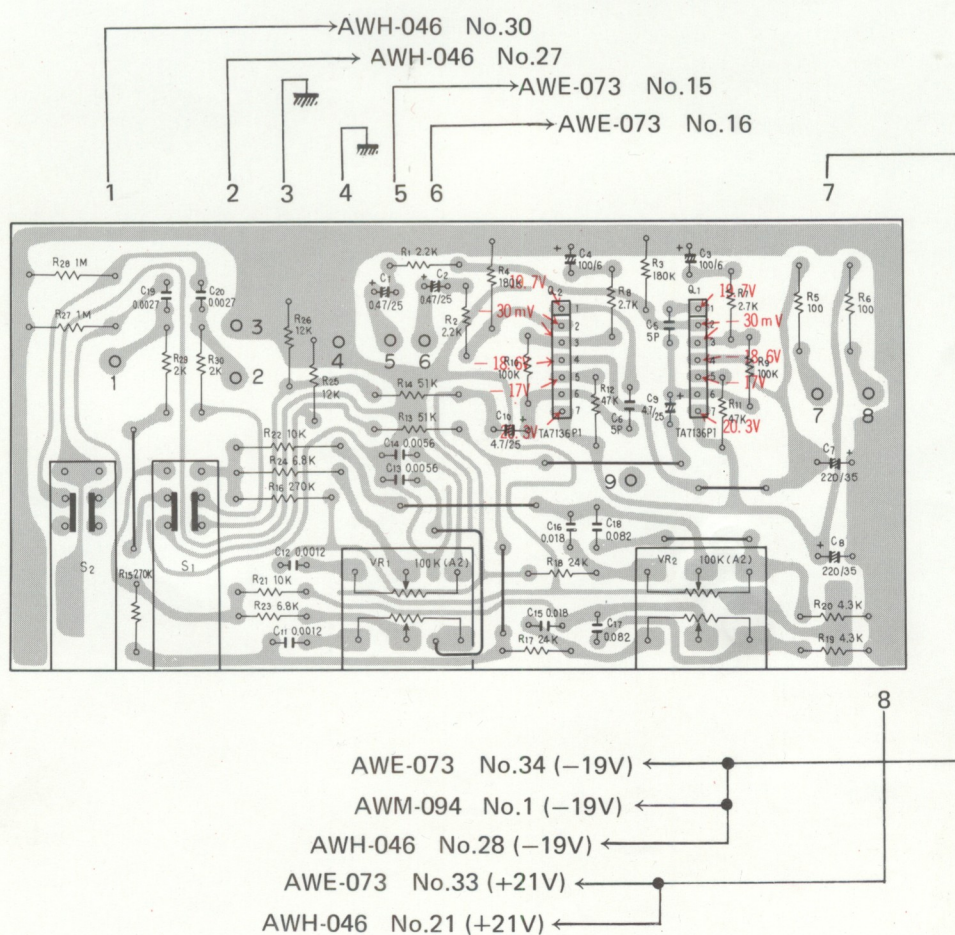
PIONEER ELECTRONIC (EUROPE) N.V.

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A misprint appears on page 52 "12.5 TONE CONTROL ASSEMBLY (AWG-046)" in point of voltage value.



5X-750





